6th Graduation Research Day Booklet

First Academic Term (391)
Academic Year 1439 – 1440 H
(Pharmacy Program)

Prepared by

Dr. Mohammad Rashid
Assistant Professor, Academic Development and Research Committee (Minute Recorder)

Reviewed by

Dr. Shahid Karim
Head of the Pharmacy Program
And Head of Academic Development and Research Committee

Message from the Dean

Each semester Pharmaceutical science program celebrates the 'Pharmacy Research Day' for the undergraduate students. It is a requirement for final year students to conduct a research project under the supervision of faculty member and present it at the end of the semester before their graduation. This semester the 6th Graduation Research Day has held on 5th December 2018 at College of Pharmacy and Dentistry.

I congratulate all of our students who presented their research works during this Pharmacy Research Day. They worked hard and were committed to complete the assigned tasks on time under the guidance of their supervisors. In addition I thank all academic supervisors and those students who were the winners of the Research Day at the College of Pharmacy and Dentistry.

Best regards

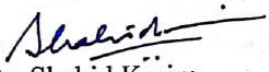
Dr. Saleh Ali Alrebish

Dean of College of Pharmacy and Dentistry

Message from the Head of Pharmacy Program

Graduate research projects are a very important component of Pharmacy graduate training. Many barriers exist which may prevent successful publication of research projects. Identifying and improving on these barriers may ultimately improve publication success which can be beneficial to the students, mentors, institutions, and practice of Pharmacy. Research projects conducted by mentor and student, helps in understanding of the characteristics of successful graduate research can be a useful tool. Understanding and implementing graduate research accomplishments can improve a student's understanding of the research process and culminate in improved resident research success. The focus of graduate training remains on the development of Pharmacists but a meaningful experience in the development and execution of a research project may better prepare students for additional development opportunities later in their careers**.**

Best regards



Dr. Shahid Karim

Head of the Pharmacy Program

Forwarded by the Research Committee

The 6th Graduate Research Day for Pharmacy takes place on week 15 of semester term 391 on 5th December 2018 at College of Pharmacy and Dentistry in Buraydah Colleges. The purpose of graduation research day is to bring together all pharmacy graduate research students for sharing and presenting their research findings as part of graduation program. This semester we had 41 posters, representing the work of with Male and Female students, making this the largest Students.

Research Day ever: Research proposals submitted for this semester were reviewed and a significant improvement in quality of the research conducted was observed. The most credit for this goes to hard work of all our student presenters, who put long hours of thoughts and efforts into their research poster presentations. In addition we also give our profound thanks to our faculty supervisors and Research committee members, who selflessly dedicate themselves for putting in the many hours that make this day happen. We encourage our students to conduct original experiments, write original grant, goes best possible training for the future and so that they are honored in the fields of knowledge and practice of Pharmacy profession.

Finally, we give special thanks to Dr. Saleh Ali Alrebish (Dean of Pharmacy), Dr. Shahid Karim (Head of the Pharmacy Program), Dr. Mohammad Fadlallah (Head of students' affairs of Pharmacy), Mr. Rakan (Secretary of Dean, the administration of Dean's office) and graduate research committee for their contribution. We have been proud to work with all of you, because you realize the importance of Student's research works.

Sincerely

All Research Committee Members

Research Committee Members:

1. Dr. Shahid Karim (Head)
2. Dr. Mohammad Rashid (Minute recorder)
3. Dr. Shamshir Khan (Member)
4. Dr. Sabna Kotta (Female section representative)
5. Dr. Nazik Tawfik (Member)

Graduate Research Project Supervisors:

1. Dr. Shahid Karim, Pharmacology and Toxicology Unit
2. Dr. Mohd Elsaeed, Pharmacology and Toxicology Unit
3. Dr. Nazik Tawfik, Pharmacology and Toxicology Unit
4. Dr. Mohammad Rashid, Medicinal Chemistry and Pharmacognosy Unit
5. Dr. Shamshir Khan, Medicinal Chemistry and Pharmacognosy Unit
6. Dr. Babar Ali, Medicinal Chemistry and Pharmacognosy Unit
7. Dr. Sabir Ahmed, Medicinal Chemistry and Pharmacognosy Unit
8. Dr. Naseem Akhtar, Pharmaceutics Unit
9. Dr. Makhmur Ahmed, Pharmaceutics Unit
10. Dr. Nadir Atalemman, Pharmaceutics Unit
11. Dr. Mohd. Faiyaz Khan, Clinical Pharmacy Unit
12. Dr. Mohammad Fadallah, Clinical Pharmacy Unit
13. Dr. Mohammad Ibrahim, Clinical Pharmacy Unit

Research Poster Evaluator

1. Dr. Babar Ali, Medicinal Chemistry and Pharmacognosy Unit
2. Dr. Mohammad Ibrahim, Clinical Pharmacy Unit

Scientific Program: 6th Pharmacy Research Day, 5th December 2018

College of Pharmacy and Dentistry at Buraydah Colleges

Session 10:00 am - 2:30 pm

Time Topic

10:00 am - 11:00 am Poster set up

11:00 am - 11:30 pm Opening remarks – Dr. Saleh Ali Alrebish & Dr. Shahid Karim

11:30 pm - 2:00 pm Poster session judging-Dr. Baber Ali and Dr. Mohammad Ibrahim

2:00 am – 12:30 pm Social Hour

2:30 pm announcement of best three (3) ranking poster presentation

The 6th Graduation Research Day at a Glance:

In support of undergraduate student research, the 6th Graduation Student Research Day has happened on 5th December 2018 to honor our students and faculty mentors in their pursuit of outstanding research activities. This professional event celebrates a wide array of three research disciplines in pharmacy program here in Buraydah Colleges.

Students have been assigned a specific time to present their poster so visitors and judges may ask questions and better understand the research activity of each student. Students have given poster presentations to the judges and top 3 (three) presenters have been selected based upon the judging results.

1. Submission guidelines:

1.1. Research Proposal

All research students have submitted a narrative summary of their original research work upon a given template. The research proposal should not exceed 2 pages. Research proposal submitted online only. All research proposals will be archived for future reference.

1.2. Poster Presentation

a) Size of the poster

• 90 cm width and 150 cm height (Vertical format only)

b) Fixing of poster

• The poster displayed on a given board/allocated space.
• Each poster must be fixed in the allocated space on the day of the event before 11:00 am.
• Each poster had assigned a unique number. This information displayed the event area.
• Materials required for fixing the poster like glue tack, cello-tape etc. will be the author's responsibility.
• Posters to be removed after the research Day.

2. Poster evaluation

• All posters have been evaluated by the expert panel on the day of event.
• The participant/Graduate student has been presented their research poster during the expert review.

4) Font type: Arial. Reference Style: Harvard

5) Location: Ground Floor, Building 3.

3. Judges:

Poster presentations, displays and other exhibits have been judged. Best three posters have been selected by the judges.

The table below shows the scoring criteria used by the judges. There are two judges per presentation. The total credit for this assessment was 50 marks.

Graduation Research Project (PHTR 499)
First Semester, 391, 1439-1440 H
College of Pharmacy and Dentistry

Poster Presentation Evaluation Marks Sheet

Student Name:…….. Student ID:……

Max. Marks = 50 Obtained Marks:……

Project Title:……

Total marks divided into two part.

Part 1: Prior to meeting with student. **30 Marks**

1. Poster Presentation (Appearance): (Rate on the scale of 3)

a. Poster attract viewer attention ……
b. Poster is neat and appealing to look at ……
c. Poster is well organised, easy to follow and logical ……
d. Poster has clear progression of ideas, methods and result discussion ……
e. Word are easy to read from an appropriate distance ……

2. Conent

a. Content is clear and easy to understand ……
b. Purpose of study (question being addressed) is stated clearly ……
c. Conclusion are stead clearly and supported by study result ……

3. Illustrations

a. Illustration are relevant to the presentation ……

4. References

a. Reference are used to support the presentation ……

Part 2: Onsite Judging of Presentation: (Rate on the scale 5) **20 Marks**

Interview with review committee

1. Reference to material contained within the poster ……
2. Presenter spoke clearly and effectively ……
3. Presented in a logical manner ……
4. Effectively summarized findings ……

Total (Part 1 & 2) = ……..

Any Comments:

……
……
……

Evaluators Name and Signature:

4. Research Day Poster Presentation Winners:

Congratulations to the winners from the 6th graduation student research Day held on 5th December 2018.
Research day winners are given below in Table 2 with their research topics:

Table 2: Research Day Winners.

Students Name	**Position**	**Research Topic**
Muteb Bin Nasser	First rank	Green synthesis of silver nanoparticles by Indian and sea costus and evaluated as anti-bacterial agent
Fahad Bin Farhan	Second rank	Study of Krameriaas traditional medicine for wound healing
Bandar bin Munwar	Third rank	*In-vitro* quality control evaluation of tablets with a low content of the active ingredient and a narrow therapeutic index

Research Title of Graduate Research Project

Graduate Research Project Titles (First Semester, Term 391, 1439-1440 H)			
S. No.	**Student ID**	**Student Name**	**Research Title**
1	202321104	عبيد بن سعدون بن دحيدح الرشيدي	Availability and needs of herbal medicinal information resources at community pharmacy, Unaizah region, Al-Qassim, Saudi Arabia.
2	202321121	طارق بن عواض بن معيض المظيبري الرشيدي	Assessment of community pharmacists capability to demonstrate Metered-Dose inhaler technique to asthmatic patients in Hail, Saudi Arabia
3	202341008	حمدان بن محمد بن مدله الهجله المطيري	The pharmaceutical evaluation of different brands of captopril tablets (50 mg) available in Al Qassim (region Saudi Arabia)
4	202341014	محمد عمر بكور صالح	Green Synthesis of Bioconjugated MNPs by (*Punica granatum*) and its use as antimcrobial agent
5	342000183	نوران بن فندي بن نوران هون الرشيدي	Anti-diabetic activity of bacteria and fungi: A review
6	342000216	هلال بن فالح بن هلال العضيله المطيري	Anti-diabetic activity of bacteria and fungi: A review
7	351000167	عبدالكريم بن عويض بن عوض المطيري	Antimicrobial activiy of mangnatic nanoparicle sythesized by Artemisia
8	351000248	اسامه بن حمد بن عبدالله الشهري	Assessment of medication adherence in type II diabetic patients
9	351000521	فهد بن فرحان بن فهد الوهيبي الحربي	Study of Krameriaas traditional medicine for wound healing
10	352000667	يحيى محمد خليل الهندي	Evaluation of metered-dose inhaler technique demonstration among community pharmacists in Buraydah, Bukeria and Al-Rass city of Al-Qassim region, Saudi-Arabia
11	352001046	عبدالكريم بن معلاء بن باين الحربي	Evaluation of metered-dose inhaler technique demonstration among community pharmacists in Onaizah, Oyoon Al-Juwaand Al-Badayacities of Al-

			Qassim region, Saudi-Arabia
12	352001323	أحمد بن سليمان بن صالح الحديثي	Educational mobile game to help students learning drug classification
13	362000757	بندر بن منور بن حمد الظبي	*In-vitro* quality control evaluation of tablets with a low content of the active ingredient and a narrow therapeutic index
14	362000803	احمد بن عشوي بن حاكم الرشيدي	Patient knowledge regarding the Antibiotic mechanism and resistance for URTI at Buraydah Colleges Campus, Buraydah, Al-Qassim, Kingdom of Saudi Arabia
15	362000805	عمر بن احمد بن محمد الغامدي	Knowledge regarding risk factors of Hypertension at King Saud medical City, Riyadh, kingdom of Saudi Arabia
16	362000806	نورالدين بن احمد بن محمد نبراوي	Knowledge Regarding Risk Factors of Hypertension at Prince Nasser Bin Saad Alsudery Hospital, Al-Ghat, Riyadh, Kingdom of Saudi Arabia
17	362000829	نايف بن متعب بن منيف المطيري	Pharmaceutical evaluation of different brands of Propranolol tablets (10 mg) available in Al-Qassim (Saudi Arabia)
18	362000870	علي بن بنيدر بن شليويح المطيري	Possibility of herbal-drug interaction in patients with diabetes and cardiovascular disorders in Buraydah city
19	362000873	حامد بن مفضي بن بخيت العرفي	A Profile of adverse effects of Antihypertensive and Antidiabetic medicines in two tertiary care Hospitals in Madinah Munnawarah.
20	362000847	نائف بن عقيل بن راشد الشمري	Assessment of medication adherence in type II diabetic patients.
21	362000884	مقبل بن قبيل بن مريغ الرويتعي	Knowledge Regarding Risk Factors of Hypertension at king Fahad Hospital and Diabetic Centre, Al-Madinah, Kingdom of Saudi Arabia.
22	362000895	خالد بن عبدالكريم بن حمد الظبي	Medication Errors in Pharmacy.

23	202311018	مشاري بن سعود بن خلف الحربي	Anti-diabetic activity of bacteria and fungi: A review.
24	202341006	عبدالرحمن صلاح يونس موصلي	Assessment of Awareness and Knowledge of Patients About Prescribed Drugs and their Package Inserts : A cross-sectional study.
25	342000028	مشاري بن سعدي بن سعد العوفي الحربي	Educational mobile game to help students learning drug classification.
26	351000095	احمد بن عبدالعزيز بن سليمان الخريف	Pharmaceutical evaluation of different brands of metformin tablets (500 mg) available in Al-Qassim, Saudi Arabia.
27	351000214	عبدالمجيد بن سالم بن محسن الحربي	Availability and needs of herbal medicinal information resources at community pharmacy, Buraydah region, Al-Qassim, Saudi Arabia.
28	351000234	عبدالاله بن مفلح بن مريبد الشملاني	Availability and needs of herbal medicinal information resources at community Pharmacy, Hafr Al-batin region, Saudi Arabia.
29	351000296	رائد بن صالح بن علي الوهيبي	Assessment of community pharmacists capability to demonstrate Metered-dose inhaler technique to asthmatic patients in Hail, Saudi Arabia.
30	351000309	يعقوب بن حمود بن مصلح العجوني الرشيدي	Assessment of community pharmacists capability to demonstrate Metered-Dose inhaler technique to asthmatic patients in Hail, Saudi Arabia.
31	351000323	متعب بن ناصر بن عبدالله الحره	Green synthesis of silver nanoparticles by Indian and sea costus and evaluated as anti-bacterial agent
32	352000608	عبدالرحمن بن سليمان بن جامع الحربي	Assessment of awareness and knowledge of patients about prescribed drugs and their package inserts : a cross-sectional study.
33	352001048	محمد بن فهد بن صغير الحربي	Assessment of medication adherence in type II diabetic patients.
34	352001384	محمود احمد محمد حجازي	Green synthesis of Bis-conjugated MNPs by curcuma longa and its use as antimicrobial agents.
35	362000781	عمر بن سعد بن رزيق	Evaluation of metered-dose inhaler technique

		المطيري	demonstration among community pharmacists in Al-Madinah region, Saudi-Arabia.
36	362000785	محمد بن سامت بن مفرح الحيسوني	Knowledge Regarding Risk Factors of Hypertension at Al-Rass General Hospital, Al-Qassim, kingdom of Saudi Arabia.
37	362000789	عبدالاله بن سعد بن عايض الحربي	Patient knowledge regarding the Antibiotic mechanism and resistance for URTI at Buraydah Colleges Campus, Buraydah, Al-Qassim, Kingdom of Saudi Arabia.
38	362000796	سلطان بن صالح بن شعوي الحربي	Educational mobile game to help students learning drug classification.
39	362000836	عبدالمحسن بن علي بن غدير العنزي	Green Synthesis of Silver Nanoparticles by Salvadora Persica (Miswak) and Study as Anti-bacterial agent.
40	362000838	سالم بن راشد بن جهيم المطيري	To analyze the impact of new antibiotic guidelines/policy on Pharmacist in their workplace: An observational study.
41	202326030	امانى العنزي	Insight on cancer pain management.

SAMPLE OF POSTERS OF PRESENTATIONS ON GRADUATE RESEARCH DAY

College of Pharmacy
1430H/ 2009G
Buraydah Private Colleges

Green Synthesis of Silver Nanoparticles by Indian and Sea Costus and Evaluated as Anti-bacterial agent

Muteb Nasser Alharrah, Shamshir Khan and Mohammad Rashid

Pharmaceutical Chemistry and Pharmacognocy Unit, College of Pharmacy and Dentistry, Buraydah Colleges, Buraydah, Al-Qassim-31717, Kingdom of Saudi Arabia

كليات بريدة
Buraydah Colleges

ABSTRACT

The current research investigation focuses on green synthesis of Silver nanoparticles from aqueous and methanol extract of indian and sea costus. Synthesis of Silver nanoparticles (AgNPs) was confirmed from color observation of the reaction mixtures, change in pH and UV-spectrophotometer spectrum of the colloidal solutions and further study its antibacterial activity. Thereby enhancing the importance of plant sources and implementation of green chemistry for the future research.

INTRODUCTION

The term "Nano" is derived from the Greek word which means dwarf and size of particle is around 1 to 100 nm. Nanoparticles act as a bridge between bulk material and atomic structure and principle parameters of NPs are size, shape, surface characteristics and inner structure. As the size of the particles approaches the nanoscale, the characteristics of the materials change and the percentage of atoms on the surface becomes significant. The special features and properties of nanoparticles like catalytic property, optical property, surface-enhanced Raman scattering and chemical strength are attributed to high fraction of surface atoms and quantum confinement. The synthesis of silver nanoparticles by using green methods which are less usage of chemicals, non-toxic, low cost and Environmental friendly.

Among the various nanoparticles (Ag, Au, Fe, Pd, ZnO/Au and ZnO/Ag as well as quantum dots CdS) silver nanoparticles places a major role because it has a number of important properties such as optical, electronic, chemical, photo electro chemical, catalytic, magnetic, antibacterial, anti-viral, antifungal anti-inflammatory, biological labelling and catalytic. Silver nanoparticle acts as antimicrobial agent which finds applications in medical field such as AgNPs coated blood collecting vessels, coated capsules, band aids etc. The silver is non-toxic to animal cells and highly toxic to bacteria and other microorganisms (E-coli, Pseudomonas aeruginosa and Staphylococcus aureus). Due to these phenomena it is considered to be safe and effective bactericidal metal.

Nanoparticles being very small in size possess large surface area to volume ratio due to which nanoparticles exhibit very different properties such as electrical, magnetic and optical properties than its bulk material. Nanotechnology has achieve the importance in different fields such as health care, food and feed, cosmetics, energy science, electronics, mechanics, space industries, environmental health, biomedical science, chemical industries, drug and gene delivery. The growing need of environment friendly nanoparticles has attracted lots of researchers to use green synthesis methods of a variety of metal nanoparticles due to their interesting, motivating, attractive and remarkable properties with a variety of applications over their bulk material.

Phytochemicals present in the plants possess anti-oxidant or reducing properties which are responsible for reduction of metal compounds. Methods used for the green synthesis of metal nanoparticles are eco-friendly, biocompatible, nontoxic and clean. Among different plants, the *indian and sea costus* had shown to exhibit various medicinal properties such as antibacterial, antifungal activity, anti-inflammatory, antioxidant. Hence, the present study was deliberately aimed with a simple and an effective approach of green synthesis of silver nanoparticles using indian and sea costus as potent antibacterial agent.

MATERIAL AND METHODS

Preparation of aqueous roots of Indian and Sea Costus extract:
Indian and sea costus was purchase from the local market of Buraydah, Al-Qassim region of Saudi Arabia. The collected roots was wash several times with double distilled water to remove any surface contamination. The washed roots was dried for 2 days at room temperature and ground into a fine powder. Then, 10 g of the powder was added to 250 mL of distilled water and soaked for 24 hours. The soaked mixture was filtered through Whatman No 1 filter paper. The extracts was utilized as a stock solution and stored at 4°C until the testing phase.

Preparation of aqueous Silver nitrate: 0.1 M AgNO3 (Silver nitrate) solution was prepare and store in amber colored bottle.

Synthesis of Silver nanoparticles (AgNPs)
Synthesis and optimization process involves taking roots extracts in volumes (20 mL) and adding to 80 ml of silver nitrate solution. The mixture solutions was kept under different conditions like sunlight and heating exposure. The reaction mixture was incubated for 30 min or till colour change to dark pink/brown observation. The color change was observed for the formation of silver nanoparticles and the reaction mixture was left standing for 24 hours. The particles was purified by centrifugation at 10,000 rpm for 15 minutes to remove excess silver ions. The centrifugation process was repeats three times to remove all silver colloids with double distilled water.

Detection and characterization of Silver nanoparticles (AgNPs)

Visual observation
The primary detection of silver nanoparticles synthesis was observed by visual color change. Generally the color change indicates the formation of Ag-NPs.

UV-Vis Spectroscopy
Further synthesis of silver nanoparticles was confirmed by UV-Vis spectrophotometer by analyzing sample in the range of 200-800nm.The dimensions and size of the nanoparticles was be noted by using Scanning Electron Microscope (SEM) and X-RD.

Antimicrobial activity by disc diffusion method:
The prepared nutrient agar was poured on to sterile petri plates and 17 h growing cultures of *E. coli* and *Staphylococcus Aureus*. pneumoniae was swabbed on to the agar plates. Meanwhile, the sterile discs was impregnated with silver nanoparticle solution and a positive control drug, and placed inverted on the swabbed plate. Empty sterile disc was be kept as negative control. The plates was incubated overnight at room temperature and the zone of inhibition was measured.

RESULTS AND DISCUSSION

Production and recovery of silver nanoparticles:
Among various methods used, sunlight irradiation method was very effective and homogenized root powder extract had shown more synthesis of nanoparticles. Thus, homogenized extract and sunlight exposure method was chosen for the synthesis of nanoparticles. For the bulk production of silver nanoparticles, 100 mL of 1 mM silver nitrate was added to the homogenized extract in a conical flask and exposed to sunlight.

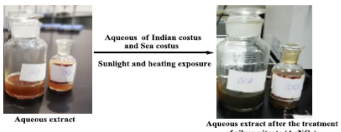
Detection and observation of Silver nanoparticles (Ag-NPs)

Visual observation
The primary detection of silver nanoparticles synthesis was observed by visual colour change. The colour change indicates the formation of Ag-NPs.

Soxhlet extract

Aqueous extract after the treatment of silver nitrate ($AgNO_3$)

Figure 1: Colour observation for the synthesis of Silver nanoparticle; Change of colour from light cream to brown yellow on exposure to sunlight/heating.

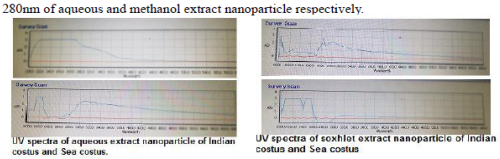


Aqueous extract

Aqueous extract after the treatment of silver nitrate ($AgNO_3$)

Figure 2: Colour observation for the synthesis of Silver nanoparticle; Change of colour from light yellowish to dark brown on exposure to sunlight/heating.

Characterization of silver nanoparticles by UV-Vis spectral analysis:
The reduction of pure $Ag2+$ ions was monitored by measuring the UV vis spectrum of the reduction media after diluting a small aliquot of the sample in distilled water and methanol. UV visible spectroscopy was carried out on Nano 300 UV visible spectrophotometer. Synthesis of silver nanoparticles was confirmed by UV-Vis spectrophotometer by analyzing sample in the range of 200-1100nm. UV-Vis spectra of the synthesized silver nanoparticles showing absorbance at 250 nm and 280nm of aqueous and methanol extract nanoparticle respectively.

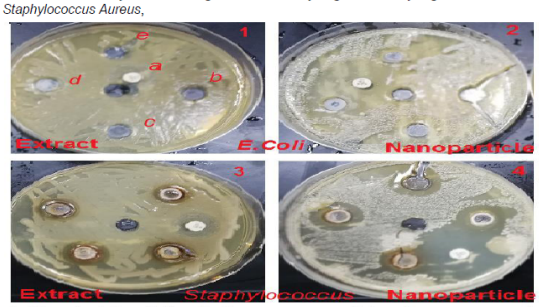


UV spectra of aqueous extract nanoparticle of Indian costus and Sea costus.

UV spectra of soxhlet extract nanoparticle of Indian costus and Sea costus

Anti-microbial Activity

Antibacterial activity of silver AgNPs and its synergistic activity against *E. coli* and *Staphylococcus Aureus*,



Antibacterial activity of silver nanaoparticle of aqueous and soxhlet extract against E.Coli and Staphylococcus Aureus
a.Antibiotic pot (Amoxicillin) b and c. Aqueous extract d & e Soxhlet extract (1 & 3)
a.Antibiotic pot (Amoxicillin) b and c. Aqueous extract nanoparticle d & e. Soxhlet extract nanoparticle (2 & 4)

CONCLUSION

In the present study silver nanoparticles was synthesized by green synthesis method using aqueous and methanol extract of indian and sea costus. The primary detection of silver nanoparticles synthesis was observed by visual color change (Creamy-yellowish to dark yellow) that indicates the formation of Silver nanoparticles (Ag-NPs). The synthetic silver nanoparticles were further subjected to analysis such as UV Vis Spectroscopy at the range of 200-1100nm in order to characterize them. Further anti-bacterial activity was checked of extract and nanoparticle against *E. Coli* and *Staphylococcus*. This opens a way to understand the synthesis of silver nanoparticles from other plants extract and leads to future research for a potential candidate for medical applications.

Acknowledgement

We would like to thank, Dean and Lab technicians, College of Pharmacy and Dentistry, Buraydah Colleges, Buraydah, Al-Qassim, KSA to provide the facility and other supporting requirements to accomplish this work.

REFERENCE

Priti R., Merina P. D, Kumar M. S., Anbarasi P., Sindhu S., Sagadevan E., Arumugam P. 2013, Green synthesis and characterization of silver nanoparticles from Nigella sativa and its application against UTI causing bacteria, Journal of Academia and Industrial Research, vol 2, issue no. 1, pp. 45-49.

Mohamad S. S., Sandhanasamy D., Akram A., Radhakrishnan V., Murugan A. M., Kadarkarai M., Marcello N., Giovanni B. 2016, Green synthesis of silver nanoparticles using Pimpinella anisum seeds: antimicrobial activity and cytotoxicity on human neonatal skin stromal cells and colon cancer cells, International Journal of Nanomedicine, vol. 1, issue no. 11, pp. 4439 - 4449.

Kumar M. P., Vinmathi V., Panchapakesan G., Wilson H. A., Jacob J. P. S. 2015, Green synthesis of silver nanorods using aqueous seed extract of Nigella sativa and study of its antidiabetic activity, Australian Journal of Basic and Applied Sciences, vol 9, issue no. 10, pp. 295-298.

Raksha P. 2015, Green synthesis of silver nanoparticles from seed extract of Brassica nigra and its antibacterial activity, Nusant Ara Bioscience, vol. 7, issue no. 1, pp. 15-19.

Knowledge Regarding Risk Factors of Hypertension at Al-Rass General Hospital, Al-Qassim, Kingdom of Saudi Arabia

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College of Pharmacy 1430H/ 2009G Buraydah Private Colleges

كليات بريدة Buraydah Colleges

ABSTRACT

This study was carryout to assess the knowledge of risk factors of hypertension among Al-Rass General Hospital patients and associate it with the blood pressure, physical activity, family history of cardiovascular disease (CVD) and Psychosocial stress. The current research investigation focuses on risk factors of hypertension among Al-Rass General Hospital patients. Thereby enhancing the awareness of risk factor for hypertension among the patients and implementation for the future healthy carrier.

INTRODUCTION

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries. The prevalence and rate of diagnosis of hypertension in children and adolescents appears to be increasing. Hypertension confers the highest attributable risk to deaths from cardiovascular disease and epidemiological data provide convincing evidence that the risk of cardiovascular disease related to blood pressure is graded and continuous. This risk is evident even in childhood with elevated blood pressure predicting hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, specifically left ventricular hypertrophy, are already apparent in youth. Reduction of blood pressure reduces this risk in people with and without hypertension and is a desired goal in children and adults (Ezzati et al., 2002; Rizwana et al., 2011).Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease.

Table 1: Blood pressure guidelines and risk factors for Hypertension.

Category	Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)	Risk factors for Hypertension:
Normal	Less than 120	Less than 80	1. High Salt Intake, 2. Physical activity, 3. Body overweight, 4. High Cholesterol, 5. High Calorie Food, 6. Renal disease, 7. Coffee Intake, 8. High Energy Drink Intake, 9. Smoking, 10. Psychosocial stress, 11. Obesity, 12. Diabetes Mellitus, 13. Family History of CVD (Cardiovascular Disease), 14. Age (Older, Young Adult and Child). **Blood Pressure = Cardiac Output x Peripheral Vascular Resistance (PVR)** **Cardia Output = Heart Rate x Force of Constriction** **Pressure = Force of Constriction / Area**
Pre-hypertension	120 – 139	80 – 89	
Hypertension – Stage 1	140 – 159	90 – 99	
Hypertension – Stage 2	160 and above	100 and above	

MATERIAL AND METHODS

The present research study was carryout in six departments at Al-Rass Hospital namely Administrations, Nursing, Male Medical Ward, Female Medical Ward,Out-Pateints and Pharmacy Departments.

Materials and Methods: A cross-sectional survey among patients in the hospital departments, with the use of a validated, self-administered questionnaire on physical activity and knowledge of risk factors of hypertension (Rizwana et al., 2011; Kusuma et al., 2009) was carryout.

Knowledge | **No Knowledge**

Name	Age	Signature	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease. With a growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group. Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach.

RESULTS

The study assessed the knowledge of fourteen risk factors of hypertension and its association with study variables among 105 participations of different departments at Al-Rass General Hospital . Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach. Strategies to achieve even a modest lowering of the levels of blood pressure in the population of older, children and young adults are therefore important public health goals. An attempt is made in the present study to assess the knowledge of risk factors of hypertension among students and associate it with the blood pressure, physical activity, family history of CVD and sociodemographic variables.

Table 2: Al-Rass General Hospital with Number of Participants.

Sr. No.	Department Name	Building No.	Participants
1	Administration	Building No. 3	18
2	Nursing	Building No. 1	18
3	Male Medical Ward	Building No. 2	18
4	Female Medical Ward	Building No. 2	15
5	Pharmacy	Building No. 1	13
6	Out- Patients	Building No. 1	23

Table 3: Knowledge regarding risk factors of hypertension among the participants.

Sr. No.	Risk factors	Knowledge	No Knowledge
1	High Salt Intake	81 (77)	24 (23)
2.	Physical activity	41 (39)	64 (61)
3.	Body overweight	69 (65)	36 (35)
4.	High Cholesterol	71 (67)	34 (33)
5.	High Calorie Food	35 (33)	70 (67)
6.	Renal disease	31 (29)	35 (71)
7.	Coffee Intake	50 (47)	55 (53)
8.	High Energy Drink Intake	60 (57)	45 (43)
9.	Smoking	70 (66)	35 (34)
10.	Psychosocial stress	37 (36)	68 (64)
11.	Obesity	81 (77)	24 (23)
12.	Diabetes Mellitus	41 (39)	64 (61)
13.	Family History of CVD	65 (61)	40 (39)
14.	Age (Older, Young Adult and Child	73 (69)	32 (31)

DISCUSSION

The present study assessed the knowledge of risk factors of hypertension among patents at Al-Rass General Hospital and associated with the blood pressure, physical activity, family history of CVD, and sociodemographic variables, so as to identify the areas to be emphasized in the health promotion practice related to hypertension. Risk factors of hypertension are well studied in young adults at Al-Rass General Hospital and but public awareness of hypertension to need in whole country. However, the results of the present study indicate that not more than 45% of the participants were aware that stress, Renal disease, Physical activity and Diabetes Mellitus were the risk factors of hypertension. It is interesting to note that more than 70% smokers had good knowledge of the risk factors. More than 70 % were aware of high salt intake and a high-calorie diet being risk factors. However, a gap in knowledge was seen in two modifiable risk factors, namely, physical activity and Diabetes Mellitus participants were not aware that these were risk factors for hypertension. More than 70% were not aware of the non-modifiable risk factors such as increasing age (69%), and positive family history of CVD (61%). It was seen that a high proportion showed good basic knowledge of hypertension, where 81% were aware of the association of hypertension with salt and obesity. The benefit of physical exercise on BP was well recognized by more than 40 % of the participants.

An effort to reverse the major risk factors of hypertension is the key aspect of suggested lifestyle changes. Primary prevention aims to reduce or modify hypertension risk factors through the implementation of appropriate policies and educative programs, in order to avoid or delay the development of cardiovascular disorders, whereas, primordial prevention focuses on the prevention of the emergence of risk factors and hence, the importance of the present study.

CONCLUSION

The present study identified gaps in the knowledge regarding risk factors of hypertension among participations from Al-Rass General Hospital, which may not be representative of all Hospital Departments. A larger study in the region is essential to gather such information about hypertension; as it is crucial to devise sound prevention and control programs, to improve knowledge attitudes and lifestyle practices early in life, to control hypertension.

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Green Synthesis of Bioconjugated MNPs by Curcuma longa and its Use as Antimicrobial Agent

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1-ABSTRACT

In recent years, the development of efficient green chemistry methods for synthesis of metal nanoparticles has become a major focus of researchers. They have investigated in order to find an eco-friendly technique for the production of well-characterized nanoparticles. One of the most considered methods is production of metal nanoparticles using plants. Among these organizations plants seem to be the best candidates and they are suitable for large-scale biosynthesis of nanoparticles. Nanoparticles produced by plants are more stable and the rate of synthesis is faster than in the case of microorganisms. In this work , a Curcuma longa was used. Staphylococcus aureus bacteria have been used in this research for the tests and the results were promising according to the table shown in this poster.

2-INTRODUCTION

"Nanotechnology is the application of science to control matter at the molecular level".1Tremendous growth in nanotechnology has opened up novel fundamental and applied frontiers in materials science and engineering, such as nanobiotechnology, ,3applied microbiology. Developments in the organization of nanoscale structures into predefined superstructures ensure that nanotechnology will play a critical role in many key technologies. It is gaining importance in areas such as mechanics, optics, biomedical sciences, chemical industry, electronics, space industries, drug-gene delivery, energy science, catalysis,6,7 optoelectronic devices,8,9 photo- electrochemical applications,10 and nonlinear optical devices.11,12 For instance, nanometre-scale germanium quantum dots (less than 10 nm) could be controllably formed for novel optoelectronic device applications such as single electron transistors and light emitters.13 Moreover, advances in nanotechnology are creating a novel class of magnetic resonance image contrast-enhancing agents such as small particles of iron oxide, fullerenes.16 Nanoparticles are of great interest due to their extremely small size and large surface to volume ratio, which lead to both chemical and physical differences in their properties (e.g. mechanical properties, biological and sterical properties, catalytic activity, thermal and electrical conductivity, optical absorption and melting point) compared to bulk of the same chemical composition.17–19 Therefore, design and production of materials with novel applications can be achieved by controlling shape and size at nanometre scale. Nanoparticles exhibit size and shape-dependent properties which are of interest for applications ranging from biosensing and catalysts to optics, antimicrobial activity, computer transistors, electrometers, chemical sensors, and wireless electronic logic and memory schemes. These particles also have many applications in different fields such as medical imaging, nanocomposites, filters, drug delivery, and hyperthermia of tumors.20. Also nanoparticle are used for different proposes. They can be used as markers for biological screening test. After cellular uptake, they can act as precise and powerful heaters (thermal scalpels) to kill cancer20.15 Moreover, gold nanoparticles are capable of inducing apoptosis in B cell-chronic lymphocytic leukemia (chronic lymphoid leukemia).3.Silver nanoparticles have drawn the attention of researchers because of their extensive applications in areas such as integrated circuits,11 sensors,20 biolabelling filters,16 antimicrobial deodorant fibres,14cell electrodes,11 and antimicrobials.17 Antimicrobial properties of Iron nanoparticles caused the use of these nanometals in different fields of medicine, various industries, cosmetics, health and military. Iron nanoparticles show potential antimicrobial effects against infectious organ isms such as Escherichia coli,Bacillus subtilis,Vibrio cholera, Pseudomonas aeruginosa,Syphillis typhus17, and Staphylococcus aureus. which I used to do tests on which the result was very good and promising..

3-MATERIALS AND METHODS

By using the Curcuma longa,
Drying the plant 200 g (hot oven/sun),
Grinding the plant (powder form)
Dissolve in methanol 500 ml, leave over night,
Filtration by filter paper – collect the filtrate and add equal volumes of iron solution in a beaker.

Observe color change due to nanoparticle formation22. Figure1
Using Uv - visible spectroscopy to prove the presence of nanoparticles manufactured using Curcuma longa
After that we study its antibacterial effect

And Several concentrations have been used to study the least effective concentrations against bacterium (MIC)

4-OBJECTIVES

This work aims to:

synthesize magnetic Nanoparticles.

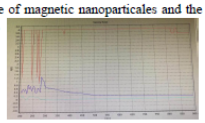
Making sure that nanoparticles exist .
And studying their antibacterial effects.

Writing this research publications in scientific journals

The ambition to use nanoparticles in the medical field, especially as anti bacterial agent

5,6- RESULTS DISCUSSION

The nanoparticles were formed strongly and remarkably, and the color changed to the intense brown color quickly even before the use of the magnetic mixer.
Uv - visible spectroscopy .
Uv visible analysis used for characterizing of the synthesized **Fe3O4 MNPs**. This peak was nearly at 410nm. Intense brown color was developed indicate the presence of magnetic nanoparticales and the appearance of peak at 410n via Uv - visible spectroscopy.figure3

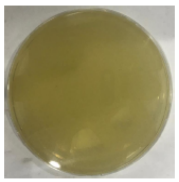


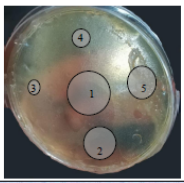
Fe NPs synthesized by pulp (Peak 405 and 415)

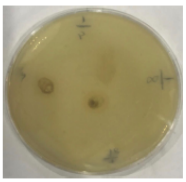
After the existence of nanoparticles has been proved :
The second part of the research was the antibiotic test on Staphylococcus aureus bacteria, The results were as shown in the table;

Number	Concentrated	Effectiveness
1	Full concentration	Very effective
2	1/2	effective
3	1/4	effective
4	1/8	inactive
5	1/16	inactive

Multiple Media was used:
1-Control
2-With Anti-biotic disk **TE30-VA30-AML25AMC30**
3-Several concentrations of compound.







7- CONCLUSION

Green synthetic method is simple and eco – friendly because it does not require any extra surfactants or reductants.The magnetic nanoparticles coated with the active ingredients of Curcuma extract facilitate the use of these nanoparticles as antibacterial agents.

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Assessment of medication adherence in type II diabetic patients

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ABSTRACT

Diabetes is a chronic disorder and requires long-term therapy. Lack of adherence to antidiabetic medication causes suboptimal glycemic control and can lead to treatment failures, development of complications, and increased mortality.

INTRODUCTION

Lack of adherence to anti diabetic medication causes suboptimal blood sugar control among patients with diabetes and can lead to treatment failures, accelerated development of complications and increased mortality. Diabetes Mellitus (DM) is a growing public health problem worldwide with an estimated 177 million people affected in 2003, 221 million by 2010 and is expected to rise to 300 million in 2025 with biggest increases in Asia and Africa [1].

Non-adherence to medication is particularly common among patients with diabetes and inadequate adherence compromises safety and treatment effectiveness, leading to increased mortality and morbidity [2].

Non-adherence is associated with factors that are patient-centered, therapy-related, or healthcare system related [3]. The patient-centered factors can be demographic (age, gender, educational level, and marital status) and psychological (patients beliefs and motivation towards the therapy, negative attitude, patient-prescriber relationship, understanding of health issues, and patients knowledge) [4] The therapy-related factors include route of medication, duration of treatment, complexity of treatment, type of medication and the side effects of the medicines. The factors linked to the healthcare system include availability and accessibility of health care, and the health provider-patient interactions [5]

Previously, numerous studies have explored potential risk factors of non adherence to medicines across a variety of conditions [6]. Medication related side effects are also associated with non-adherence [7]. A study done in Uganda in an urban hospital indicated long time interval to a facility visit, patients not understanding the drug regimen and inability to afford the cost of the drugs as associated with non-adherence [8] . Use of a diet plan and being told why to control diet are also associated with adherence [9]

MATERIAL AND METHODS

Medication adherence was assessed using the MMAS-8 (Morisky Medication Adherence Scale) .The scale consists of eight questions, first seven items having a dichotomous answer (YES =1 / NO=0) that indicates adherent or non-adherent behavior. For item 8, a patient can choose an answer on a 5-point Likert scale (first one = 0 and last four = 1), expressing how often happens that a patient does not take his medications. MMAS-8 scores can range from 0 to 8 points. Cut-off values for categorizing patients as having a high, medium or low adherence rate were chosen based upon diabetic patient.

RESULTS

A total of 100 type II diabetic patients were included and analyzed. The range of sample age was less than 25 (31%) and more than 25 (69%) years old, and male to female ratio 59% : 41% (Table 1).

Responses of the study participants to individual items of MMAS-8 are summarized in (Table 2).

Responses of patients were analyzed, 42% said they forgot to take medicines when away from home and/or traveling; 66% complained of inconvenience and difficulty in adhering to medication plan; 71% said they just forgot to take medicines; 57% said they miss taking their medications for reasons other than forgetting.

Table (1) characteristics of type II diabetic patients enrolled in the study

Patient characteristic	Value	
Gender	Male	Female
	59%	41%
Age in years	Less than 25	More than 25
	31%	69%

Table (2) responses of participants to individual items of MMAS-8

Questions	Yes (%)	No (%)
1. Do you sometimes forget to take your antidiabetic pills?	71	29
2.People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past 2 weeks,were there any days when you did not take your antidiabetic medicine.	57	43
3. Have you ever cut back or stopped taking your antidiabetic medication without telling you doctor, because you felt worse when you took it?	50	50
4. When you travel or leave home, do you sometimes forget to bring along your antidiabetic medication?	42	58
5. Did you take your antidiabetic medicine yesterday?	75	25
6. When you feel like your diabetes is under control, do you sometimes stop taking your medicine?	56	44
7. Taking antidiabetic medication every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your antidiabetic treatment plan?	66	34
8. How often do you have difficulty remembering to take all your antidiabetic medication?		
Never/rarely	24	
Once in a while	17	
Sometimes	46	
Usually	7	
All the time	6	

DISCUSSION

The findings of the study suggest that the medication adherence was low and addresses the issue of non-adherene among type II diabetic patients.

It was observed many patients forgot to take medicines with them while traveling. Some of them stopped taking medicines on their own because they believed that their diabetes was under control. Others felt it was difficult to stick to a prescribed treatment plan and so stopped medication.

Physicians can play a major role in improving medication adherence by increasing interaction with patients. They need to educate and counsel the patients on the importance of medication adherence in order to achieve optimal glycemic control.

CONCLUSION

Overall, the medication adherence was low in type II diabetic patients. There is a need to address the issue of non-adherence to medication. Efforts should be made by physicians to identify the reasons for non-adherence and initiate steps to improve it. Counseling and health education of the patients related to medication adherence need to be improved.

Acknowledgement

We express our sincere appreciation to those who have contributed to this thesis and supported us during this journey. First and foremost, we wish to place on records our heartfelt ad sincere thanks to our supervisor Dr Mohammed Ebraheem Elmosharaf for his valuable contributions and guidance. Our sincere gratitude is reserved for our dean, the collage of pharmacy and dentistry for providing us an opportunity to bring up this research to light.

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Evaluation of metered-dose inhaler technique demonstration among community pharmacists in Onaizah, Oyoon Al-Juwa and Al-Badaya cities of Al-Qassim region, Saudi-Arabia

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Poster No.

ABSTRACT

Background:

➢Patients rely on the information about use of proper inhaler technique when dispensed by community pharmacists.

➢Several studies have shown that patients are unable to show correct inhalation technique.

Objective:

➢The aim of this study is to assess the ability of community pharmacists in three different cities of Al-Qassim region to demonstrate proper inhalation technique of meter dose inhaler.

Method

➢We approach 32 pharmacies in Onaizah, Oyoon Al-Juwa and Al-Badaya cities of Al-Qassim region as mock patient (Investigator).

➢The investigator asks the Pharmacist to guide him about proper inhalation technique of meter dose inhaler.

➢Investigator completes a standardized and validated checklist of 9 steps of inhaler device use immediately after leaving the pharmacy.

Result

➢This study has found that majority(100%) of community pharmacists failed to demonstrate proper inhalation technique of pMDI inhaler.

Conclusion

➢The pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI

1. INTRODUCTION

- Asthma and chronic obstructive pulmonary disease are highly prevalent in the recent years (Gershon et al., 2010; Hamdan et al., 2013). About 20–25% prevalence rate of asthma exists in Saudi patients (Hamdan et al., 2013).
- The use of inhaled medications has advantage in the management of bronchial asthma, because of their greater efficacy and fewer adverse effects when compared with available oral medications (Osman et al., 2012; Hamdan et al., 2013).
- The most important advantage of inhaled therapy is the direct, localized delivery of a high concentration of drugs to the airways with minimal systemicside effects (Broeders et al., 2009).
- Improper use of inhalation device can lead to decrease in drug delivery and poor asthma control. This in turn, leads to frequent emergency visits (Broeders et al., 2009; Lindgren et al., 1987).
- It is logical that patients get demonstration of proper inhalation technique when dispensed by community pharmacists.
- A study has been done in the Al Ahsa region of Saudi Arabia shows that pharmacists were found to have a poor recognition with the steps considered while using an inhaler (Khan and Azhar, 2013). In our study we evaluated the demonstration of inhalation technique of a pressurized metered dose inhaler by community pharmacists in the Al-Medinah region, Saudi Arabia

2. RESARCH METHODOLOGY

A total number of 32 community pharmacies were approached for this cross sectional observational study in the three different city viz., Onaizah, Oyoon Al-Juwa and Al-Badaya of Al-Qassim region of Saudi Arabia and data were collected from October 2018 till November 2018.

The pressurized metered dose inhaler that we have selected is Ventolin Inhaler that contains salbutamol.

The mock patient that is actually investigator has visited these community pharmacies with pressurized metered dose inhaler that is Ventolin. The investigator asked the community pharmacist to demonstrate the inhaler technique for him. Investigator observed the technique carefully and completed the validated checklist (Bryant et al., 2013) of 9 steps after leaving the pharmacy.

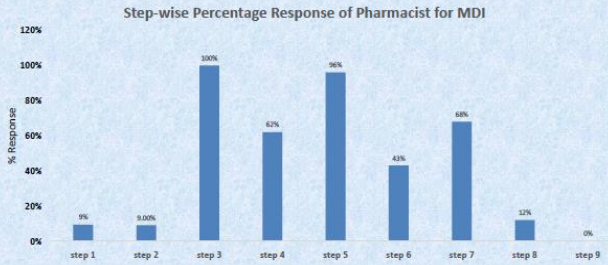
Another step has been added after the checklist which states that pharmacist can ask to repeat the steps from patient after demonstration (Giraud and Roche, 2002; Knudsen, 2014). It helps the pharmacist to discover the problems that patient will face while using the product.

The asthma management guidelines also recommend checking this step at each patient visit (EPR-3, 2007).

Table 1: Recommended Checklist of Metered Dose Inhaler
1. Remove cap and shake the inhaler vigorously
2. Breath out slowly and completely
3. Hold the inhaler in the upright position
4. Insert the mouthpiece into mouth between closed lips Or up to 4 centimeters in front the open mouth
5. Depress the canister once and At the same time begin slow deep inhalation continue to total lung capacity
6. Remove the inhaler with closed lips
7. Hold breath for 10-15 seconds
8. Wait for 20-30 seconds before starting the second puff
9. Did your Pharmacist asked to repeat the steps after demonstration?

3. RESULTS AND DISCUSSION

This study has found that majority (100%) of community pharmacists failed to demonstrate proper inhalation technique of MDI inhaler. However, pharmacist were found to showed good response towards step-3, 4, 5 & 7 which was 100, 62, 96 & 66% respectively.



4. CONCLUSION

➢This study shows that community pharmacists in Al-Qassim region have lack of the knowledge and skills required demonstrating the proper meter dose inhaler technique.

➢In fact, the pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI.

➢The errors detected in this simple assessment session, if translated to patient self-medication errors, are potentially significant.

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Evaluation of metered-dose inhaler technique demonstration among community pharmacists in Al-Medinah region, Saudi-Arabia

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Poster No.

ABSTRACT

Background:

➢Patients rely on the information about use of proper inhaler technique when dispensed by community pharmacists.

➢Several studies have shown that patients are unable to show correct inhalation technique.

Objective:

➢The aim of this study is to assess the ability of community pharmacists in Al-Medinah region to demonstrate proper inhalation technique of meter dose inhaler.

Method

➢We approach 20 pharmacies in Al-Medinah region as mock patient (Investigator).

➢The investigator asks the Pharmacist to guide him about proper inhalation technique of meter dose inhaler.

➢Investigator completes a standardized and validated checklist of 9 steps of inhaler device use immediately after leaving the pharmacy.

Result

➢This study has found that majority (93.7%) of community pharmacists failed to demonstrate proper inhalation technique of pMDI inhaler.

Conclusion

➢The pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI

1. INTRODUCTION

- Asthma and chronic obstructive pulmonary disease are highly prevalent in the recent years (Gershon et al., 2010; Hamdan et al., 2013). About 20–25% prevalence rate of asthma exists in Saudi patients (Hamdan et al., 2013).
- The use of inhaled medications has advantage in the management of bronchial asthma, because of their greater efficacy and fewer adverse effects when compared with available oral medications (Osman et al., 2012; Hamdan et al., 2013).
- The most important advantage of inhaled therapy is the direct, localized delivery of a high concentration of drugs to the airways with minimal systemicside effects (Broeders et al., 2009).
- Improper use of inhalation device can lead to decrease in drug delivery and poor asthma control. This in turn, leads to frequent emergency visits (Broeders et al., 2009; Lindgren et al., 1987).
- It is logical that patients get demonstration of proper inhalation technique when dispensed by community pharmacists.
- A study has been done in the Al Ahsa region of Saudi Arabia shows that pharmacists were found to have a poor recognition with the steps considered while using an inhaler (Khan and Azhar, 2013). In our study we evaluated the demonstration of inhalation technique of a pressurized metered dose inhaler by community pharmacists in the Al-Medinah region, Saudi Arabia

2. RESARCH METHODOLOGY

We have done a cross sectional observational study in the Al-Medinah region of Saudi Arabia and data were collected from October 2018 till November 2018.

A total number of twenty community pharmacies were visited in Medinah city. The pressurized metered dose inhaler that we have selected is Ventolin Inhaler that contains salbutamol.

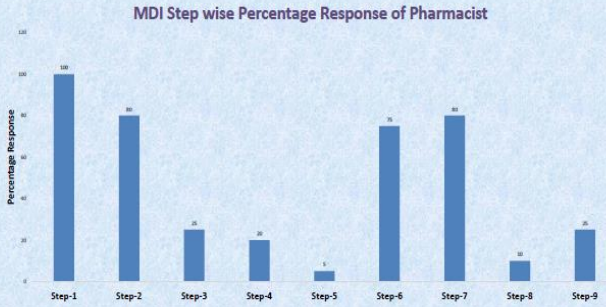
The mock patient that is actually investigator has visited these community pharmacies with pressurized metered dose inhaler that is Ventolin. The investigator asked the community pharmacist to demonstrate the inhaler technique for him. Investigator observed the technique carefully and completed the validated checklist (Bryant et al., 2013) of 9 steps after leaving the pharmacy. Another step has been added after the checklist which states that pharmacist can ask to repeat the steps from patient after demonstration (Giraud and Roche, 2002; Knudsen, 2014). It helps the pharmacist to discover the problems that patient will face while using the product.

The asthma management guidelines also recommend checking this step at each patient visit (EPR-3, 2007).

Table 1: Recommended Checklist of Metered Dose Inhaler
1. Remove cap and shake the inhaler vigorously
2. Breath out slowly and completely
3. Hold the inhaler in the upright position
4. Insert the mouthpiece into mouth between closed lips Or up to 4 centimeters in front the open mouth
5. Depress the canister once and At the same time begin slow deep inhalation continue to total lung capacity
6. Remove the inhaler with closed lips
7. Hold breath for 10-15 seconds
8. Wait for 20-30 seconds before starting the second puff
9. Did your Pharmacist asked to repeat the steps after demonstration?

3. RESULTS AND DISCUSSION

This study has found that majority (100%) of community pharmacists failed to demonstrate proper inhalation technique of MDI inhaler. But pharmacist were found to showed good response towards step-1, 2, 6 & 7 which was 100, 80, 75 & 80% respectively.



4. CONCLUSION

➢This study shows that community pharmacists in Al-Medinah region have lack of the knowledge and skills required demonstrating the proper meter dose inhaler technique.

➢In fact, the pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI.

➢The errors detected in this simple assessment session, if translated to patient self-medication errors, are potentially significant.

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Evaluation of metered-dose inhaler technique demonstration among community pharmacists in Buraydah, Bukeria and Al-Rass city of Al-Qassim region, Saudi-Arabia

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Poster No.

ABSTRACT

Background:

➢Patients rely on the information about use of proper inhaler technique when dispensed by community pharmacists.

➢Several studies have shown that patients are unable to show correct inhalation technique.

Objective:

➢The aim of this study is to assess the ability of community pharmacists in three different cities of Al-Qassim region to demonstrate proper inhalation technique of meter dose inhaler.

Method

➢We approach 39 pharmacies in Al-Qassim region as mock patient (Investigator).

➢The investigator asks the Pharmacist to guide him about proper inhalation technique of meter dose inhaler.

➢Investigator completes a standardized and validated checklist of 9 steps of inhaler device use immediately after leaving the pharmacy.

Result

➢This study has found that majority of the community pharmacists failed to demonstrate proper inhalation technique of MDI inhaler.

Conclusion

➢The pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI

1. INTRODUCTION

- Asthma and chronic obstructive pulmonary disease are highly prevalent in the recent years (Gershon et al., 2010; Hamdan et al., 2013). About 20–25% prevalence rate of asthma exists in Saudi patients (Hamdan et al., 2013).
- The use of inhaled medications has advantage in the management of bronchial asthma, because of their greater efficacy and fewer adverse effects when compared with available oral medications (Osman et al., 2012; Hamdan et al., 2013).
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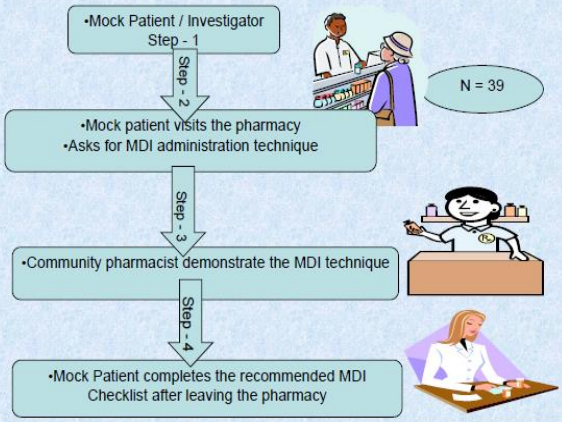
- Improper use of inhalation device can lead to decrease in drug delivery and poor asthma control. This in turn, leads to frequent emergency visits (Broeders et al., 2009; Lindgren et al., 1987).
- It is logical that patients get demonstration of proper inhalation technique when dispensed by community pharmacists.

2. RESARCH METHODOLOGY



The asthma management guidelines also recommend checking this step at each patient visit (EPR-3, 2007).

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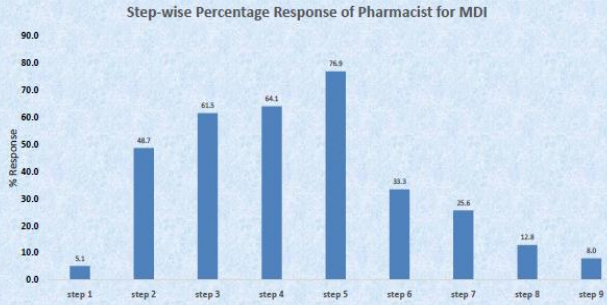
8. Wait for 20-30 seconds before starting the second puff
9. Did your Pharmacist asked to repeat the steps after demonstration?

3. RESULTS AND DISCUSSION

This study has found that majority (100%) of community pharmacists failed to demonstrate proper inhalation technique of MDI inhaler. But pharmacist were found to showed good response towards step-3, 4 & 5 which was 61.5, 64.1 & 76.9% respectively.



4. CONCLUSION

➢This study shows that community pharmacists in three different cites viz. Buraydah, Bukeria and Al-Rass of Al-Qassim region have lack of the knowledge and skills required demonstrating the proper meter dose inhaler technique.

➢In fact, the pharmacists demonstrated particularly poor skills involving steps for coordination of the actuation process with the mechanics of inhalation with MDI.

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Assessment of community pharmacists capability to demonstrate Metered-Dose inhaler technique to asthmatic patients in Hail, Saudi Arabia.

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ABSTRACT

Although community pharmacists have become more involved in the care of asthma patients, several studies have assessed pharmacists' ability to illustrate appropriately inhalation technique of different asthma devices. Many studies addressed inappropriate use of asthma devices by patients and pharmacists. The aim of this study is to investigate the community pharmacists` capability to demonstration the technique of Metered-Dose Inhaler use to asthmatic patients in Hail region, Saudi Arabia.

INTRODUCTION

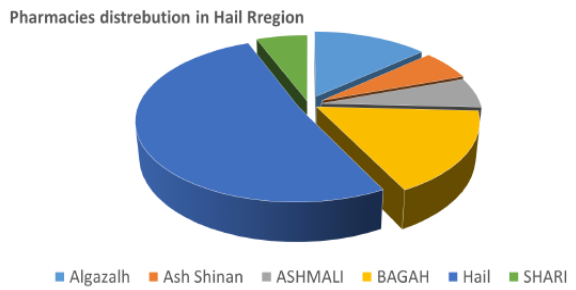
Asthma has been defined as a chronic dis- ease characterized by recurrent attacks of breath- lessness and wheezing, which vary in severity and frequency from person to person, whose symptoms may occur several times in a day or week and may may become worse during physical activity or at night [1].This disease are highly prevalent in the recent years [2,3]. About 20–25% prevalence rate of asthma exists in Saudi patients [3]. The most important advantage of inhaled therapy is the direct, localized delivery of a high concentration of drugs to the airways with minimal systemic side effects [4]. Improper use of inhalation device can lead to decrease in drug delivery [4]. The percentage of drug that reaches the lung after proper inhalation technique is only up to fifteen percent [5]. Many previous studies revealed that pharmacists lack the knowledge of handling inhaler devices [3, 5, 6, 7, and 8]. There are various types of inhalation devices available in the market. However, the most common Ventolin Evohaler device is pressurized metered dose inhaler. Community pharmacists play a significant role in demonstration of proper inhalation technique] 9 [. In this study we assessed the demonstration of inhalation technique of a pressurized metered dose inhaler by community pharmacists in Hail region, Saudi Arabia.

MATERIAL AND METHODS

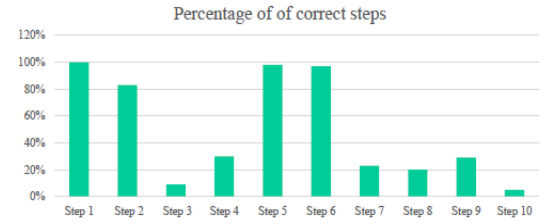
The community pharmacies approached in six towns and villages, namely Hail (34), Ashmali (4), Algazalh (9), Bagah (11), Shari (4) and Ashshinan (4). One asthma device was assessed which was Metered-dose inhaler (MDI). Investigators were pharmacy students in final year, acted as a mystery patients. They selected one device and asked the serving pharmacist to demonstrate how to use the device. Investigator completed a checklist of 10 steps of inhaler device use immediately after leaving the pharmacy. And were evaluated based on our papers, and whether it was answered or not.

RESULTS

We approached 66 community pharmacies in Hail region (towns and villages), Majority of pharmacies in Hail town, the capital of the region. None of the pharmacies visited completed the nine essential steps demonstration of the MDI techniques.



Step	
1	Remove the cap from the mouthpiece
2	Shake the inhaler several times
3	Stand and hold head up straight, holding the inhaler in a mouth-piece down position
4	Exhale all the way until you can breathe out no more
5	Place the mouth piece between your teeth and close your lips, don't block the opening with your mouth
6	While breathing in deeply and slowly depress the top of the metal canister to release a dose
7	Continue to breathe in slowly over 4-5 second
8	Hold your breath for 10 second
9	Breathe out slowly
10	Repeat step 1 to 10 after 30 second if another does is necessary



DISCUSSION

Many studies have focused on the assessment of patient's mishandling of asthma inhaler devices and its clinical consequence in term of disease control or unscheduled hospital admissions [10]. The present study revealed that community pharmacists were much closer to traditional product-focused practice, whereby they lacked the basic knowledge and essential skills of demonstrating inhalation technique that is essential for effective asthma patients counseling. Failure of pharmacists to properly handle asthma MDI seems to be compatible with studies that documented that physicians, pharmacists, house staff and nurses are similarly were often unable to demonstrate aerosol inhalers techniques adequately [11].

CONCLUSION

The present study complies with the findings of previous studies in KSA regions and neighboring countries , which showed a lack of knowledge and ability to demonstrate the proper use techniques of MDI. This problem need to be addressed through training programs for community pharmacists, workshops and continuous education programs.

Acknowledgement

We would like to thank the teaching staff members of pharmacy at BPC for their continues support to complete this research work

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Green Synthesis Of Bioconjugated MNPs By *(Punica granatum)* And Its Uses As Anti-microbial Agent

Mohammed Omar saleh

Supervisors : Dr. Mohammed El-Saeed
Dr. Omar Mohammed Saleh

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كليات بريدة Buraydah Colleges

1-ABSTRACT

In recent years, the development of efficient green chemistry methods for synthesis of metal nanoparticles has become a major focus of researchers. They have investigated in order to find an eco-friendly technique for the production of well-characterized nanoparticles. One of the most considered methods is production of metal nanoparticles using plants. Among these organizations plants seem to be the best candidates and they are suitable for large-scale biosynthesis of nanoparticles. Nanoparticles produced by plants are more stable and the rate of synthesis is faster than in the case of microorganisms. In this work , a pomegranate plant was used. Staphylococcus aureus bacteria have been used in this research for the tests and the results were very good and promising according to the table shown in this poster.

2-INTRODUCTION

"Nanotechnology is the application of science to control matter at the molecular level".1 Tremendous growth in nanotechnology has opened up novel fundamental and applied frontiers in materials science and engineering, such as nanobiotechnology, ,2applied microbiology. Developments in the organization of nanoscale structures into predefined superstructures ensure that nanotechnology will play a critical role in many key technologies. It is gaining importance in areas such as mechanics, optics, biomedical sciences, chemical industry, electronics, space industries, drug-gene delivery, energy science, catalysis,3 optoelectronic devices,4 photo- electrochemical applications,5 and nonlinear optical devices.6 For instance, nanometre-scale germanium quantum dots (less than 10 nm) could be controllably formed for novel optoelectronic device applications such as single electron transistors and light emitters.7 The ability to tune the optical absorption/emission properties of quantum dots (semiconductor nanoparticles) by simple variation in nanoparticle size is particularly attractive in the facile band-gap engineering of materials8 and the growth of quantum dot lasers.9 Moreover, advances in nanotechnology are creating a novel class of magnetic resonance image contrast-enhancing agents such as small particles of iron oxide, fullerenes.10 Nanoparticles are of great interest due to their extremely small size and large surface to volume ratio, which lead to both chemical and physical differences in their properties (e.g. mechanical properties, biological and sterical properties, catalytic activity, thermal and electrical conductivity, optical absorption and melting point) compared to bulk of the same chemical composition.11 Therefore, design and production of materials with novel applications can be achieved by controlling shape and size at nanometre scale. Nanoparticles exhibit size and shape-dependent properties which are of interest for applications ranging from biosensing and catalysts to optics, antimicrobial activity,12 computer transistors, electrometers, chemical sensors, and wireless electronic logic and memory schemes. These particles also have many applications in different fields such as medical imaging, nanocomposites, filters, drug delivery, and hyperthermia of tumors.13. Also nanoparticle are used for different proposes. They can be used as markers for biological screening test. After cellular uptake, they can act as precise and powerful heaters (thermal scalpels) to kill cancer14 Moreover, gold nanoparticles are capable of inducing apoptosis in B cell-chronic lymphocytic leukemia (chronic lymphoid leukemia).15.Silver nanoparticles have drawn the attention of researchers because of their extensive applications in areas such as integrated circuits,16sensors,17 biolabelling filters,18 antimicrobial deodorant fibres,19cell electrodes,21 and antimicrobials.17 Antimicrobial properties of Iron nanoparticles caused the use of these nanometals in different fields of medicine, various industries, cosmetics, health and military. Iron nanoparticles show potential antimicrobial effects against infectious organ isms such as Escherichia coli,Bacillus subtilis,Vibrio cholera, Pseudomonas aeruginosa,Syphillis typhus18, and Staphylococcus aureus. which I used to do tests on which the result was very good and promising..

3-MATERIALS AND METHODS

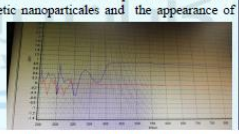
By using the Pomegranate plant,
Drying the plant 200 g (hot oven/sun),
Grinding the plant (powder form)
Dissolve in methanol 800 ml, leave over night,
Filtration by filter paper –
collect the filtrate and add equal volumes of iron solution in a beaker.
Observe color change due to nanoparticle formation21. Figure1and 2
Using Uv - visible spectroscopy to prove the presence of nanoparticles manufactured using pomegranate
After That study its antibacterial effect
And Several concentrations
have been used to study the least effective(MIC) concentrations against bacteria Staphylococcus aureus *On Mueler Hinton agar media.*

4-Objectives

This work aims to:
synthesize magnetic Nanoparticles.
Making sure that nanoparticles exist .
And studying their antibacterial effects.
Writing this research publications in scientific journals
The ambition to use nanoparticles in the medical field, especially as anti bacterial agent

5,6- RESULTS DISCUSSION

The nanoparticles were formed strongly and remarkably, and the color change changed to the intense black color quickly even before the use of the magnetic mixer.
Uv - visible spectroscopy .
Uv visible analysis used for characterizing of the synthesized **Fe3O4 MNPs**. This peak was at 410nm black color was developed indicate the presence of magnetic nanoparticales and the appearance of peak at 410n via Uv - visible spectroscopy.figure3

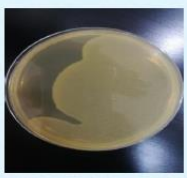


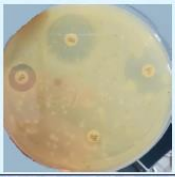
Fe NPs synthesized by pulp (Peak 405 and 415)

After the existence of nanoparticles has been proved :
The second part of the research was the antibiotic test on Staphylococcus aureus bacteria. The results were as shown in the table;

Number	Concentrated	Effectiveness
1	Full concentration	Very effective
2	1/2	effective
3	1/4	effective
4	1/8	effective
5	1/16	inactive

Multiple Media was used:
1-Control
2-With Anti-biotic disk TE30-VA30-AML25AMC30
3-Several concentrations of compound.





7- CONCLUSION

green synthetic method is simple and eco – friendly because it does not require any extra surfactants or reductants. The magnetic nanoparticles coated with the active ingredients of pomegranate extract facilitate the use of these nanoparticles as antibacterial agents
Nanotechnology is a modern technique and the goal is to access a very accurate and reliable method for diagnosis and treatment of diseases,Hence my research has come.
We have done this research and the aim was to reach the possibility of obtaining antimicrobials from pomegranate through this technique, Indeed, we found that pomegranate has many roots and many unsaturated organic bonds.
The Prove that we have a dark black color This alone proves the existence of these bonds that were associated with the iron atoms.

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PHARMACEUTICAL EVALUATION OF DIFFERENT BRANDS OF METFORMIN TABLETS (500 MG) AVAILABLE IN AL QASSIM (SAUDI ARABIA)

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ABSTRACT

The tablets are the most popular oral dosage forms are which are easily administered by patients. The pharmacists prescribe the right drug to be administered to patients; this is based on the quality, brand, and product availability in the market. Quality control Analysis is to regularly check in each step to produce a good quality of the products **(Shabana, 2016)**. Metformin (500 mg) tablet is an effective first choice medicine used to control high blood glucose levels in patients with type II diabetes and is generally well tolerated **(Malek et al., 2013)**. Metformin, marketed under the trade name Glucophage, Metform, Glucopharm among others and also available as a generic medication. Metformin is believed to be the most widely used medication for diabetes which is taken by mouth. The labeled amount of drug in a formulation and its availability to the body are two important factors on which efficacy of a tablet formulation depends. The human body at a specific and defined amount through the gastro-intestinal system for producing therapeutic effect. It is necessary to determine the parameters of tablets during manufacturing to ensure that the product is of desired quality. For example, weight variation, hardness, friability, disintegration time, dissolution profile etc. This includes the procedures used in the manufacturing process of the active drug and excipients. All the mentioned parameters are firmly relevant to each other and have effect on drug bioavailability **(Karmakar et al., 2012)**.

Keywords: Metformin, Quality control test, Comparative evaluation

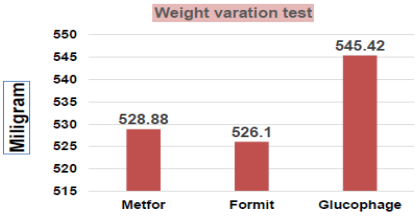
OBJECTIVE: The main objective is to evaluate different brands of Metformin tablets marketed in Al-Qassim (Saudi Arabia).

EXPERIMENTAL

Metformin tablets of three different brands were purchased from a retail pharmacy in Al-Qassim pharmaceutical region, Saudi Arabia. The brand name of products was Metfor (Tabook Pharma), Formit (Spimaco), and Glucophage (Merck Serono). The digital analytical balance, friabilator, erwerka hardness tester machine and disintegration test apparatus were used for this research project.

WEIGHT VARIATION TEST

For each brand, 20 tablets were weighed selected and weighed individually and collectively and percentage (%) deviation was determined using a digital analytical balance.



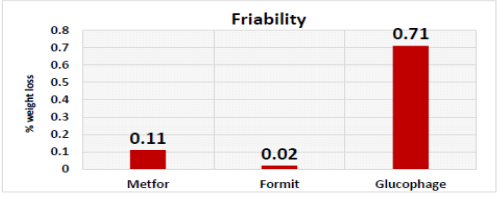
The requirements are met with weight variation according to USP that is, out of all the brands the weight of not more than 2 tablets differs from the average weight by more than 10%.

SN	Metfor	Formit	Glucophage
1	540	535	525
2	531	517	530
3	556	516	523
4	544	535	532
5	543	524	534
6	541	534	522
7	537	521	531
8	552	521	532
9	549	525	537
10	568	527	534
11	548	525	526
12	545	531	525
13	539	529	535
14	540	534	523
15	551	526	528
16	542	534	534
17	542	525	535
18	553	530	528
19	546	532	533
20	549	526	539
AW	545	526	529

FRIABILITY

Friability is measured of mechanical strength of tablets. Each brands of 10 tablets were taken and weighed on analytical balance. These tablets were placed in the section 1 of the drum of the friability tester and rotated 100 times or 4 minutes.

The friability of the tablets were then calculated using the following expression:
% Friability = [(Initial weight – Final weight)/Initial weight]×100

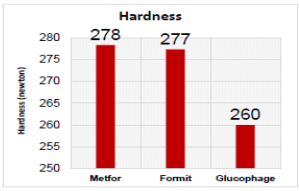


The above figure showed that the % weight loss for Glucophage brand has the highest weight loss, when compared to Metfor and Formit.
All the 3 brands have less than 1% of weight loss, which indicated that, these brands were, met the USP requirements. **A maximum % weight loss is considered as acceptable values as per the USP.**

HARDNESS TEST

Ten tablets of each brand were taken, a tablet was placed between the jaws of the Erwerka hardness tester automatic machine and the integrated menu allows to set measuring mode to breaks the tablets and hardness measurement were recorded.

The values of hardness for all the three brands are met with USP requirements. A force of hardness upto 300 Newton is required to break a tablet, so all of the samples were tested for hardness were passed the test.



DISINTEGRATION TEST

This test is used as a guide to the formulator in the preparation of a satisfactory tablet formula as a control test on the process. Therefore, to ensure batch-to-batch product uniformity, DT test is very important.

A 900 ml beaker was filled with water and maintained at 37°C. From each brand six tablets were placed into the basket rack assembly and connected to the disintegration apparatus. The apparatus and the timer were started simultaneously and the time required for the last tablet to disintegrate was recorded. The disintegration time was taken to be the time no granule of any tablet was left on the mesh.

The values disintegration with mean and standard deviation for different 3 brands of Metformin tablets with strength of 5 mg. *N* = 3

TYPES	METFOR	FORMIT	GLUCOPHAGE
Mean ± SD in minute	13.00 ± 1.87	20.5 ± 1. 91	6.51 ± 7.02

The above table of disintegration values of Metfor, Formit and Glucophage indicated that Glucophage has less disintegration time when compared with the disintegration time of Metfor and Formit. The disintegration time for all the 3 brands met with USP requirements. **As per the USP specification, uncoated in 15 min and film coated tablets should disintegrate within 30 min.**

CONCLUSION

The study was made by conducting study of quality control tests such as weight variation, friability, hardness and disintegration test. The results indicated that all the three brands have met the requirements of the quality control test as per USP which indicated that all they are pharmaceutically equivalent. Although, there were slight differences between the brands due to the various manufacturing process but all the brands have met the requirements for quality control tests. This study is used to conclude that among these three brands of Metformin tablet any one of the brand may used as alternative of other brands. It is revealed tablets marketed, manufactured by pharmaceutical companies in Saudi Arabia are of satisfactory quality & met Pharmacopoeial standards with respect to the tested parameter.

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I would like to thank Buraydah Private Colleges for providing me this facility to carry out my graduation research project

Green Synthesis of Silver Nanoparticles by *Salvadora Persica* (Miswak) and Study as Anti-bacterial agent

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ABSTRACT

The current research investigation focuses on green synthesis of Silver nanoparticles from aqueous and methanol extract of *Salvadora Persica* (Miswak). Synthesis of Silver nanoparticles (AgNPs) was confirmed from color observation of the reaction mixtures, change in pH and UV-spectrophotometer spectrum of the colloidal solutions and further study its antibacterial activity. Thereby enhancing the importance of plant sources and implementation of green chemistry for the future research.

INTRODUCTION

The term "Nano" is derived from the Greek word which means dwarf and size of particle is around 1 to 100 nm. Nanoparticles act as a bridge between bulk material and atomic structure and principle parameters of NPs are size, shape, surface characteristics and inner structure. As the size of the particles approaches the nanoscale, the characteristics of the materials change and the percentage of atoms on the surface becomes significant. The special features and properties of nanoparticles like catalytic property, optical property, surface-enhanced Raman scattering and chemical strength are attributed to high fraction of surface atoms and quantum confinement. The synthesis of silver nanoparticles by using green methods which are less usage of chemicals, non-toxic, low cost and Environmental friendly.

Among the various nanoparticles (Ag, Au, Fe, Pd, ZnO/Au and ZnO/Ag as well as quantum dots CdS) silver nanoparticles places a major role because it has a number of important properties such as optical, electronic, chemical, photo electro chemical, catalytic, magnetic, antibacterial, anti-viral, antifungal anti-inflammatory, biological labelling and catalytic. Silver nanoparticle acts as antimicrobial agent which finds applications in medical field such as AgNPs coated blood collecting vessels, coated capsules, band aids etc. The silver is non-toxic to animal cells and highly toxic to bacteria and other microorganisms (E-coli, Pseudomonas aeruginosa and Staphylococcus aureus). Due to these phenomena it is considered to be safe and effective bactericidal metal.

Nanoparticles being very small in size possess large surface area to volume ratio due to which nanoparticles exhibit very different properties such as electrical, magnetic and optical properties than its bulk material. Nanotechnology has achieve the importance in different fields such as health care, food and feed, cosmetics, energy science, electronics, mechanics, space industries, environmental health, biomedical science, chemical industries, drug and gene delivery. The growing need of environment friendly nanoparticles has attracted lots of researchers to use green synthesis methods of a variety of metal nanoparticles due to their interesting, motivating, attractive and remarkable properties with a variety of applications over their bulk material.

Phytochemicals present in the plants possess anti-oxidant or reducing properties which are responsible for reduction of metal compounds. Methods used for the green synthesis of metal nanoparticles are eco-friendly, biocompatible, nontoxic and clean. Among different plants, the *Salvadora Persica* (Miswak) had shown to exhibit various medicinal properties such as antibacterial, antifungal activity, anti-inflammatory, antioxidant. Hence, the present study was deliberately aimed with a simple and an effective approach of green synthesis of silver nanoparticles using *Salvadora Persica* (Miswak) as potent antibacterial agent.

MATERIAL AND METHODS

Preparation of aqueous roots of Miswak extract:
Miswak was purchase from the local market of Buraydah, Al-Qassim region of Saudi Arabia. The collected roots was wash several times with double distilled water to remove any surface contamination. The washed roots was dried for 2 days at room temperature and ground into a fine powder. Then, 10 g of the powder was added to 250 mL of distilled water and soaked for 24 hours. The soaked mixture was filtered through Whatman No 1 filter paper. The extracts was utilized as a stock solution and stored at 4°C until the testing phase.

Preparation of aqueous Silver nitrate: 0.1 M AgNO3 (Silver nitrate) solution was prepare and store in amber colored bottle.

Synthesis of Silver nanoparticles (AgNPs)
Synthesis and optimization process involves taking roots extracts in volumes (20 ml) and adding to 80 ml of silver nitrate solution. The mixture solutions was kept under different conditions like sunlight and heating exposure. The reaction mixture was incubated for 30 min or till colour change to dark pink/brown observation. The color change was observed for the formation of silver nanoparticles and the reaction mixture was left standing for 24 hours. The particles was purified by centrifugation at 10,000 rpm for 15 minutes to remove excess silver ions. The centrifugation process was repeats three times to remove all silver colloids with double distilled water.

Detection and characterization of Silver nanoparticles (AgNPs)

Visual observation
The primary detection of silver nanoparticles synthesis was observed by visual color change. Generally the color change indicates the formation of Ag-NPs.

UV-Vis Spectroscopy
Further synthesis of silver nanoparticles was confirmed by UV-Vis spectrophotometer by analyzing sample in the range of 200-800nm.The dimensions and size of the nanoparticles was be noted by using Scanning Electron Microscope (SEM) and X-RD.

Antimicrobial activity by disc diffusion method:
The prepared nutrient agar was poured on to sterile petri plates and 17 h growing cultures of *E. coli* and *E. faecalis*. pneumoniae wias swabbed on to the agar plates. Meanwhile, the sterile discs was impregnated with silver nanoparticle solution and a positive control drug, and placed inverted on the swabbed plate. Empty sterile disc was be kept as negative control. The plates was incubated overnight at room temperature and the zone of inhibition was measured.

RESULTS AND DISCUSSION

Production and recovery of silver nanoparticles:
Among various methods used, sunlight irradiation method was very effective and homogenized root powder extract had shown more synthesis of nanoparticles. Thus, homogenized extract and sunlight exposure method was chosen for the synthesis of nanoparticles. For the bulk production of silver nanoparticles, 100 mL of 1 mM silver nitrate was added to the homogenized extract in a conical flask and exposed to sunlight.

Detection and observation of Silver nanoparticles (Ag-NPs)

Visual observation
The primary detection of silver nanoparticles synthesis was observed by visual colour change. The colour change indicates the formation of Ag-NPs.

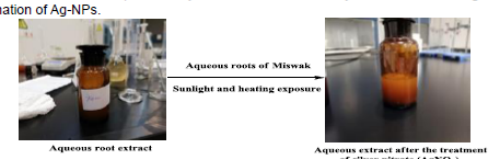
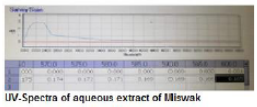


Figure 1: Colour observation for the synthesis of Silver nanoparticle; Change of colour from light cream to dark yellow on exposure to sunlight.

Figure 2: Colour observation for the synthesis of Silver nanoparticle; Change of colour from light yellow to dark brown on exposure to sunlight.

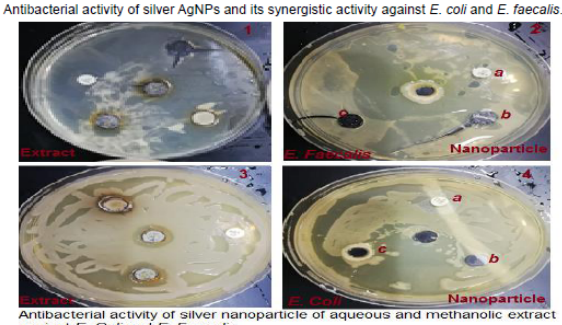
Characterization of silver nanoparticles by UV-Vis spectral analysis:
The reduction of pure Ag2+ ions was monitored by measuring the UV vis spectrum of the reduction media after diluting a small aliquot of the sample in distilled water and methanol. UV visible spectroscopy was carried out on Nano 300 UV visible spectrophotometer. Synthesis of silver nanoparticles was confirmed by UV-Vis spectrophotometer by analyzing sample in the range of 200-1100nm. UV-Vis spectra of the synthesized silver nanoparticles showing absorbance at 250 nm and 280nm of aqueous and methanol extract nanoparticle respectively.


UV-Spectra of aqueous extract of Miswak


UV-Spectra of methanol extract of Miswak

Anti-microbial Activity

Antibacterial activity of silver AgNPs and its synergistic activity against *E. coli* and *E. faecalis*.



Antibacterial activity of silver nanoparticle of aqueous and methanolic extract against *E. Coli* and *E. Faecalis*.
a. Antibiotic pot (Amoxicillin) b. Aqueous extract c. Methanolic extract (1 & 3)
a. Antibiotic pot (Amoxicillin) b. Silver nanoparticle of Aqueous extract c. Silver nanoparticle of Methanolic extract (2 & 4)

CONCLUSION

In the present study silver nanoparticles was synthesized by green synthesis method using aqueous and methanol extract of Miswak. The primary detection of silver nanoparticles synthesis was observed by visual color change (Creamy-yellowash to dark yellow) that indicates the formation of Silver nanoparticles (Ag-NPs). The synthetic silver nanoparticles were further subjected to analysis such as UV Vis Spectroscopy at the range of 200-1100nm in order to characterize them. Further anti-bacterial activity was checked of extract and nanoparticle against *E. Coli* and *E. Faecalis*. This opens a way to understand the synthesis of silver nanoparticles from other plants seed extract and leads to future research for a potential candidate for medical applications.

Acknowledgement

We would like to thank, Dean and Lab technicians, College of Pharmacy and Dentistry, Buraydah Colleges, Buraydah, Al-Qassim, KSA to provide the facility and other supporting requirements to accomplish this work.

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To analyze the impact of new antibiotic guidelines/policy on Pharmacist in their workplace: An observational study

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INTRODUCTION

The National Antimicrobial Guidelines for Community and Hospital Acquired Infections in Adults issued by Ministry of Health, Saudi Arabia that help streamline practice and minimize misuse of antimicrobial drugs.[1] Since their discovery, antibiotics have contributed to the reduction in mortality and morbidity from infectious disease and have made other treatments and procedures such as cancer treatments and organ transplantation possible. However, there are individual adverse consequences of antibiotic therapy, for example side effects such as *Clostridium difficile* infection and tendonitis as well as contribution to the development of resistance both in the individual patient and the general population.[2,3]

Antibiotic resistance is an increasingly serious patient safety and public health problem world-wide.[1,4–6] Resistance is threatening those treatments that depend on antibiotic therapy as well as the treatment of infection itself. Bacteria are becoming resistant faster than new antibiotics are being developed; this threatens the ability of medical teams to treat certain infections and makes antibiotics a highly valuable and finite resource.[5,6] For these reasons we need to consider prescriptions for antibiotics with the utmost care and attention and help our patients gain the most from these valuable medicines.

This is particularly important because 80 per cent of antibiotics are prescribed in primary care.[1,7] Sore throat, common cold, acute otitis media, acute infective conjunctivitis, acute bronchitis and acute sinusitis are the most common infections presenting in primary care. Evidence shows that antibiotics use in these conditions has limited value,[8] and can lead instead to adverse effects, increased consultations, high cost and an increased risk of resistance.[8–14]

Therefore, a study was planned to conduct an open ended survey of practicing pharmacist in hospital and primary healthcare centers in Al-Qassim Region of Saudi Arabia.

MATERIAL AND METHODS

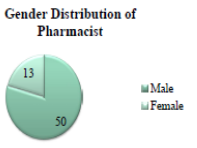
A questionnaire was prepared with 15 questions related to demographics and antibiotic handling by pharmacist.

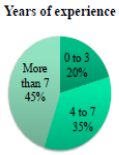
The questionnaire was prepared and distributed online.

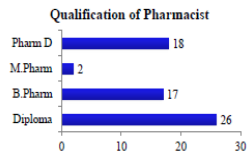
All results were collected and analyzed by Descriptive statistics.

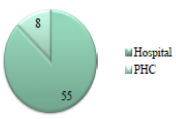
The results will be presented as percentage distribution for each question.

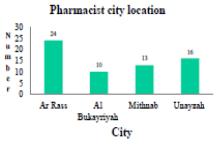
RESULTS AND DISCUSSION

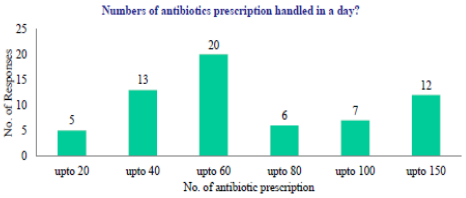


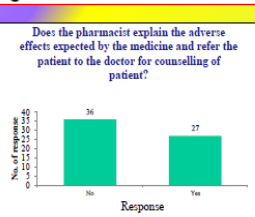


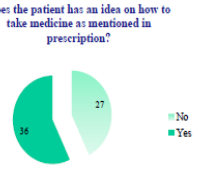


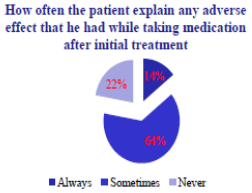


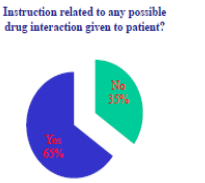












Recommendations

- Educate and inform patients and healthcare professionals about the appropriate use of antibiotics
- Motivate healthcare professionals to prescribe antibiotics more appropriately
- Educate and inform patients and healthcare professionals about the importance of preventing resistance to antibiotics

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Patient knowledge regarding the Antibiotic mechanism and resistance for URTI at Buraydah Colleges Campus, Buraydah, Al-Qassim, Kingdom of Saudi Arabia

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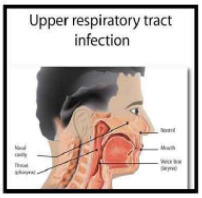
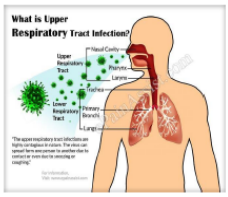
BACKGROUND AND OBJECTIVE

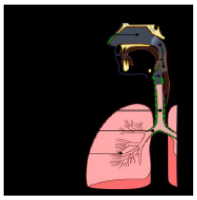
The misuse of antibiotics is not a harmless practice, rather, it can render future antibiotic treatments ineffective. This study looked to determine patient knowledge and perception of upper respiratory infections and indicated treatment.

INTRODUCTION

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries. The prevalence and rate of diagnosis of hypertension in children and adolescents appears to be increasing. Hypertension confers the highest attributable risk to deaths from cardiovascular disease and epidemiological data provide convincing evidence that the risk of cardiovascular disease related to blood pressure is graded and continuous. This risk is evident even in childhood with elevated blood pressure predicting hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, specifically left ventricular hypertrophy, are already apparent in youth. Reduction of blood pressure reduces this risk in people with and without hypertension and is a desired goal in children and adults (Ezzati et al., 2002; Rizwana et al., 2011).Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease.







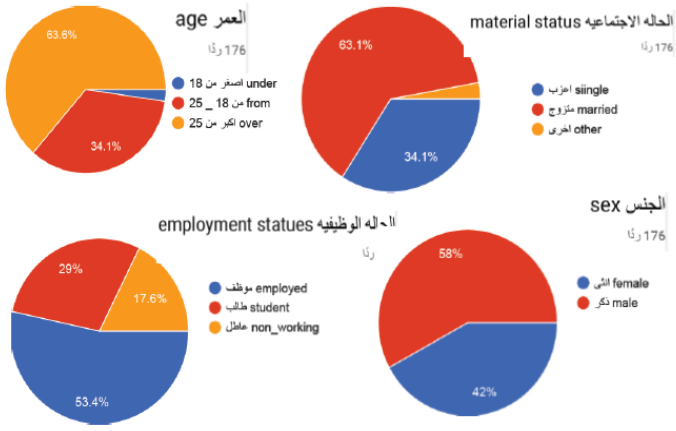
Methodology

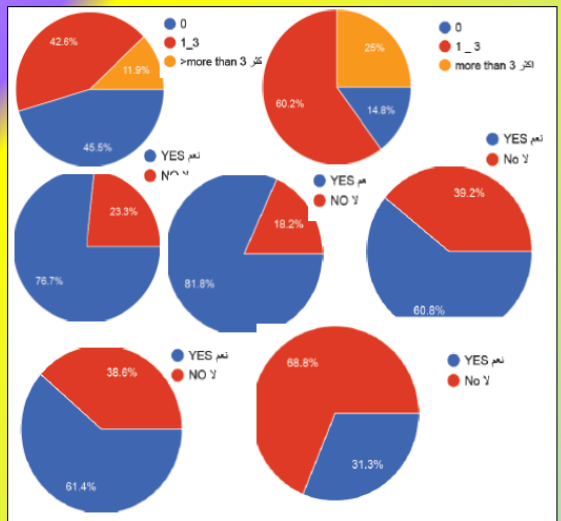
The authors developed and administered a questionnaire to 176 patients visiting affiliated family medicine clinical sites. Participants were selected randomly, either while sitting in the waiting room, or after being seen by the clinician.

Institutional Review Board (IRB)-approved study was undertaken to determine the perception and knowledge of patients regarding antibiotic use in a family medicine practice. The investigators developed and administered the approved questionnaire to 176 individuals in three family medicine practices located in al-qassim. By having patients participate in the study, the authors expected to include representation from a varied cultural and socioeconomic patient population group.

Timeline	
Week 4,5,6 and 7	Attending Methodology Classes
Week 8	Meeting with my project supervisor and choosing ,and discussing the title.
Week 9 and 10	Preparing and distributing the questionnaire online and collecting the data.
Week 11	Analysis the data.
Week 12	Making Poster
Week 13	Presenting the research

RESULTS





DISCUSSION

Our study demonstrates just how little patients truly understand about upper respiratory tract infections, antibiotic indication, and its ramifications for misuse. With the morbidity and mortality associated with resistant bacteria, particularly streptococcus pneumonia, physicians need to educate patients not only on preventative measures, but also on avoidance of antibiotic misuse unless there is strong evidence for bacterial infection. Before this can occur however, clinicians themselves must avoid the common misperception that patients expect antibiotic treatment even when not indicated. If the medical community is to succeed at curbing the problem of antibiotic resistance, current research suggests that patient education is the key.

The results of such community-oriented research might provide additional information not evident in national research studies, such as was shown in our study where patients trust their physician and are satisfied when told antibiotic treatment is not indicated and their preference for being educated by their physicians about specific antibiotic treatment options.

Primary care providers need to take advantage of this opportunity, reflect on both their own prescribing habits and beliefs, and on their patients' health care preferences and thereby improve patient education regarding antibiotic resistance. Furthermore, academic institutions should place strong emphasis on patient education in their medical curricula, training all future physicians to effectively counsel their patients regarding necessary and/or unnecessary treatment.

CONCLUSION

Primary care providers have the greatest opportunity to curb inappropriate antibiotic use by both prescribing appropriately and educating their patients about proper antibiotic use when it indicated

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Acknowledgement

We would like to thank, Hospital Manger, Director of Pharmacy, Head of Nursing Department ,Supervisor of Male Medical Ward and Supervisor of Female Medical Ward to provide the facility and other supporting requirements to accomplish this work.

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Possibility of herbal-drug interaction in patients with diabetes and cardiovascular disorders in Buraydah city

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ABSTRACT

ThisBackground: Most of patients with chronic disease are use herb with prescribed medicine without counseling pharmacists which expose them to drug-herb interaction consequences.

Methodology: A questionnaire conducted in Buraydah for 60 patients with diabetes and CVS disorders to reveal the frequency and type of drug-herb interactions.

Result: High proportion of patients 45% had at least one drug-herb interaction of which 59% did not disclosed their use of herb usage. Most identified drug herb interaction is between; ginger - aspirin 81 mg, panax ginseng - aspirin 81 mg (52% and 15% respectively).

Conclusion: Pharmacist and physician are recommended to communicate with patients to avoid possible negative outcomes of drug-herb interactions

INTRODUCTION

There is worldwide increase in consumption of herbal products especially for management of chronic diseases (1). Most of the patients fail to disclose their use of natural medicines to physician, which may lead to clinical implications (4).A study conducted by Alkharfy, K.M (2010) found that community pharmacists in Riyadh had little or no knowledge about important herb-drug interactions which may expose patients to drug herbal interactions. Medications affecting cardiovascular and nervous system had more documented interaction with natural supplements

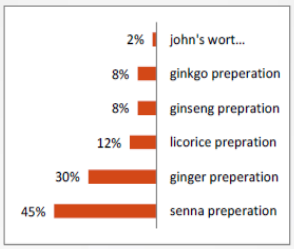
MATERIAL AND METHODS

The study based on questionnaire conducted during October 2018. Patients with diabetes and cardiovascular disorders were asked to participate in the study. These patients belong to Buraydah city. The questionnaire included information about socio-demographic characteristics, disease condition, medication use, herbal use, wither they disclose their herb usage to pharmacist. Possible interactions between medication and herbs were reviewed using Benzie, I. and Wachtel-Galor, S. book of Herbal medicine (3) and drug interactions checker- medscape drug reference database (5). Analysis was performed using MS excel 2007.

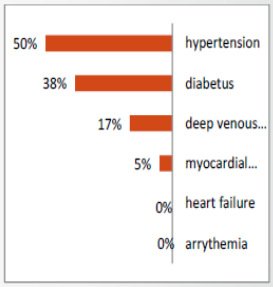
RESULTS

Table 1: herb- drug interaction identified in study sample

Herb-drug	Interaction class	consequence of interaction	%
ginger - aspirin 81 mg	monitor closely	increase risk of bleeding	52%
panax ginseng - aspirin 81 mg	monitor closely	increase risk of bleeding	15%
ginckgo biloba- aspirin 81 mg	monitor closely	increase risk of bleeding	7%
Senna- digoxin 0.125 mg	monitor closely	increase risk of cardiac toxicity due to depletion of potassium	7%
ginckgo biloba- warfarine	monitor closely	increase risk of bleeding	4%
Licorice- digoxin 0.125 mg	minor	increase the effect of digoxin by pharmacodynamic synergism	4%
panax ginseng- glebencalamid 5mg	monitor closely	increase effects of glipizide by pharmacodynamic synergism	4%
panax ginseng- glicaizide 80 mg	monitor closely	increase effects of glipizide by pharmacodynamic synergism	4%
St. johns wart - aspirin 81 mg	monitor closely	increase risk of bleeding	4%

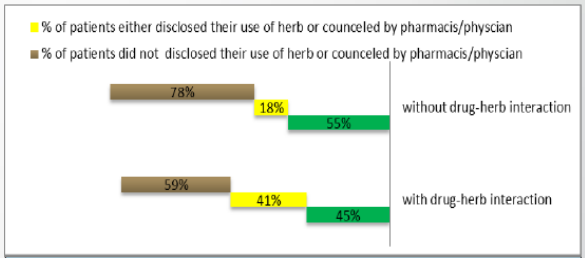


Graph 2: patients' herb usage profile



Graph 1: patients' chronic disorders profile

Graph 3: percentage of patients with or without drug-herb interaction



DISCUSSION

The study proof the high possibility of drug-herb interactions in Buraydah city as 45% of the patients was found to have at least one interaction. The age mean for the 60 patients is 59.1 year ± 9 75% of them are using herbal preparations concomitantly with prescribed medicines which may increase risk possible drug herb interaction (2). Anticoagulant and cardiotonic drugs are highly associated with drug herb interactions (6) as 92 % of the identified drug-herb interactions are with aspirin, warfarine and digoxin. Only 29% of the 60 patients and 41% of those identified with drug-herb interactions either discussed their use of herb with pharmacist or physician.

CONCLUSION

Use of herbal preparations is common practice among diabetics and cardiovascular disorders patients in Buraydah city. A substantial proportion of patients is at risk of drug herb interactions and failed to disclose to pharmacist and physician about use of herb. So pharmacist and physician are recommended to ask patients to avoid possible negative outcomes.

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Knowledge Regarding Risk Factors of Hypertension at King Fahad Hospital and Diabetic Centre, Al-Madena, Kingdom of Saudi Arabia

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ABSTRACT

This study was carryout to assess the knowledge of risk factors of hypertension among participants at King Fahad Hospital and Diabetic Centre and associate it with the blood pressure, physical activity, family history of cardiovascular disease (CVD) and Psychosocial stress. The current research investigation focuses on risk factors of hypertension among participants at King Fahad Hospital and Diabetic Centre . Thereby enhancing the awareness of risk factor for hypertension among the students and implementation for the future healthy carrier.

INTRODUCTION

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries. The prevalence and rate of diagnosis of hypertension in children and adolescents appears to be increasing. Hypertension confers the highest attributable risk to deaths from cardiovascular disease and epidemiological data provide convincing evidence that the risk of cardiovascular disease related to blood pressure is graded and continuous. This risk is evident even in childhood with elevated blood pressure predicting hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, specifically left ventricular hypertrophy, are already apparent in youth. Reduction of blood pressure reduces this risk in people with and without hypertension and is a desired goal in children and adults (Ezzati et al., 2002; Rizwana et al., 2011).Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease.

Table 1: Blood pressure guidelines and risk factors for Hypertension.

Category	Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)	Risk factors for Hypertension:
Normal	Less than 120	Less than 80	1. High Salt Intake, 2. Physical activity, 3. Body overweight, 4. High Cholesterol, 5. High Calorie Food, 6. Renal disease, 7. Coffee Intake, 8. High Energy Drink Intake, 9. Smoking, 10. Psychosocial stress, 11. Obesity, 12. Diabetes Mellitus, 13. Family History of CVD (Cardiovascular Disease), 14. Age (Older, Young Adult and Child).
Pre-hypertension	120 – 139	80 – 89	
Hypertension – Stage 1	140 – 159	90 – 99	
Hypertension – Stage 2	160 and above	100 and above	

Blood Pressure = Cardiac Output x Peripheral Vascular Resistance (PVR)
Cardia Output = Heart Rate x Force of Constriction
Pressure = Force of Constriction / Area

MATERIAL AND METHODS

The present research study was carryout in four departments at King Fahad Hospital and Diabetic Centre namely Out Patient Department, In Patient Department, Cardiac Centre and Diabetic Centre.

Materials and Methods: A cross-sectional survey among patient and staff in the Hospital, with the use of a validated, self-administered questionnaire on physical activity and knowledge of risk factors of hypertension (Rizwana et al., 2011; Kusuma et al., 2009) was carryout.

Knowledge | **No Knowledge**

Name	Age	Signature	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease. With a growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group. Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach.

RESULTS

The study assessed the knowledge of fourteen risk factors of hypertension and its association with study variables among 50 participants of different departments at King Fahad Hospital. Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach. Strategies to achieve even a modest lowering of the levels of blood pressure in the population of older, children and young adults are therefore important public health goals. An attempt is made in the present study to assess the knowledge of risk factors of hypertension among students and associate it with the blood pressure, physical activity, family history of CVD and sociodemographic variables.

Table 2: King Fahad Hospital with Number of Participants.

Sr. No.	Department Name	Building No.	Participants
1	In Patient Department	Building No. 1	8
2	Out Patient Department	Building No. 2	12
3	Cardiac Centre	Building No. 3	15
4	Diabetic Centre	Building NO. 4	15

Table 3: Knowledge regarding risk factors of hypertension among the participants.

Sr. No.	Risk factors	Knowledge	No Knowledge
1	High Salt Intake	42 (84%)	8 (16%)
2.	Physical activity	18 (36%)	32 (64%)
3.	Body overweight	28 (56%)	22 (44%)
4.	High Cholesterol	29 (58%)	21 (42%)
5.	High Calorie Food	19 (38%)	31 (62%)
6.	Renal disease	28 (56%)	22 (46%)
7.	Coffee Intake	23 (46%)	27 (54%)
8.	High Energy Drink Intake	23 (46%)	27(54%)
9.	Smoking	38 (76%)	12 (24%)
10.	Psychosocial stress	41 (82%)	9 (18%)
11.	Obesity	36 (72%)	14 (28%)
12.	Diabetes Mellitus	38 (76%)	12 (24%)
13.	Family History of CVD	31 (62%)	19 (38%)
14.	Age (Older, Young Adult and Child	29 (58%)	21 (42%)

DISCUSSION

The present study assessed the knowledge of risk factors of hypertension among participants at King Fahad Hospital and associated with the blood pressure, physical activity, family history of CVD, and sociodemographic variables, so as to identify the areas to be emphasized in the health promotion practice related to hypertension. Risk factors of hypertension are well studied in adults at king Fahad Hospital and public awareness of hypertension to need in whole country. However, the results of the present study indicate that not more than 46% of the participants were aware that Coffee Intake and High Energy Drink Intake were the risk factors of hypertension. It is interesting to note that more than 75% smokers had good knowledge of the risk factors. More than 80 % were aware of high salt intake and Psychosocial stress being risk factors. However, a gap in knowledge was seen in two modifiable risk factors, namely, High Cholesterol and Body Overweight participants were not aware that these were risk factors for hypertension. More than 60% were not aware of the non-modifiable risk factors such as Physical Activity (64%). It was seen that a high proportion showed good basic knowledge of hypertension, where more than 70% were aware of the association of hypertension with salt , obesity and Diabetes Mellitus. The benefit of physical exercise on BP was well recognized by more than 50 % of the participants.

An effort to reverse the major risk factors of hypertension is the key aspect of suggested lifestyle changes. Primary prevention aims to reduce or modify hypertension risk factors through the implementation of appropriate policies and educative programs, in order to avoid or delay the development of cardiovascular disorders, whereas, primordial prevention focuses on the prevention of the emergence of risk factors and hence, the importance of the present study.

CONCLUSION

The present study identified gaps in the knowledge regarding risk factors of hypertension among students from Buraydah College campus, which may not be representative of all colleges and university students. A larger study in the region is essential to gather such information about hypertension; as it is crucial to devise sound prevention and control programs, to improve knowledge attitudes and lifestyle practices early in life, to control hypertension.

Acknowledgement

We would like to thank Director, Dr. Fahad Khatiri, King Fahad Hospital, to provide the facility and other supporting requirements to accomplish this work and authors dedicate this work toward the hypertensive patients and significant advisors to them.

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Knowledge Regarding Risk Factors of Hypertension at Prince Nasser Bin Saad Alsudery Hospital, Al-Ghat, Riyadh, Kingdom of Saudi Arabia

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ABSTRACT

This study was carryout to assess the knowledge of risk factors of hypertension among Prince Nasser Bin Saad Al-Sudery hospital and associate it with the blood pressure, physical activity, family history of cardiovascular disease (CVD) and Psychosocial stress. The current research investigation focuses on risk factors of hypertension among Prince Nasser Bin Saad Al-Sudery hospital. Thereby enhancing the awareness of risk factor for hypertension among the students and implementation for the future healthy carrier.

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MATERIAL AND METHODS

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Materials and Methods: A cross-sectional survey among department in the hospital, with the use of a validated, self-administered questionnaire on physical activity and knowledge of risk factors of hypertension (Rizwana et al., 2011; Kusuma et al., 2009) was carryout.

Knowledge | **No Knowledge**

Name	Age	Signature	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Even as most studies describe knowledge of hypertension and its risk factors in older adults and the elderly, there is a paucity of such data among teenagers and young adults as they are considered to be at a lower risk of developing the disease. With a growing problem of hypertension worldwide, there is a concern that hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group. Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach.

RESULTS

The study assessed the knowledge of fourteen risk factors of hypertension and its association with study variables among 91 students of different level Prince Nasser Bin Saad Al-Sudery hospital. Knowledge of the predisposing risk factors is vital in the modification of lifestyle behaviors conducive to optimal cardiovascular health. Measuring and appropriately disseminating knowledge of the modifiable risk factors at an early age is an essential preventive educational approach. Strategies to achieve even a modest lowering of the levels of blood pressure in the population of older, children and young adults are therefore important public health goals. An attempt is made in the present study to assess the knowledge of risk factors of hypertension among department and associate it with the blood pressure, physical activity, family history of CVD and sociodemographic variables.

Table 2: Prince Nasser Bin SaadAl-Sudery, Hospital, Riyadh with Number of Participants.

Sr. No.	Department Name	Building No.	Participants
1	Out Patient	Main Building	28
2	Obstetrics & Gynaecology	Main Building	19
3	Emergency Room	Emergency Relief Department	18
4	Pharmacy	Main Building	26

Table 3: Knowledge regarding risk factors of hypertension among the participants.

Sr. No.	Risk factors	Knowledge	No Knowledge
1	High Salt Intake	64 (70)	27 (30)
2.	Physical activity	43 (47)	48 (53)
3.	Body overweight	54 (59)	37 (41)
4.	High Cholesterol	58 (63)	33 (37)
5.	High Calorie Food	45 (49)	46 (51)
6.	Renal disease	39 (42)	52 (58)
7.	Coffee Intake	51 (56)	40 (44)
8.	High Energy Drink Intake	50 (54)	46 (46)
9.	Smoking	48 (52)	44 (48)
10.	Psychosocial stress	38 (41)	56 (59)
11.	Obesity	53 (58)	35 (42)
12.	Diabetes Mellitus	47 (51)	46 (49)
13.	Family History of CVD	49 (53)	44 (47)
14.	Age (Older, Young Adult and Child	51 (56)	40 (44)

DISCUSSION

The present study assessed the knowledge of risk factors of hypertension among Prince Nasser Bin Saad Al-Sudery hospital and associated with the blood pressure, physical activity, family history of CVD, and sociodemographic variables, so as to identify the areas to be emphasized in the health promotion practice related to hypertension. Risk factors of hypertension are well studied in young adults at Prince Nasser Bin Saad Al-Sudery hospital and but public awareness of hypertension to need in whole country. However, the results of the present study indicate that not more than 41% of the participants were aware that stress was the risk factors of hypertension. It is interesting to note that more than 50% smokers had good knowledge of the risk factors. More than 70 % were aware of high salt intake and a high-calorie diet being risk factors. However, a gap in knowledge was seen in two modifiable risk factors, namely, physical activity and Diabetes Mellitus participants were not aware that these were risk factors for hypertension. More than 70% were not aware of the non-modifiable risk factors such as increasing age (56%), and positive family history of CVD (53%). It was seen that a high proportion showed good basic knowledge of hypertension, where 70% and % were aware of the association of hypertension with salt and obesity respectively. The benefit of physical exercise on BP was well recognized by more than 47 % of the participants.

An effort to reverse the major risk factors of hypertension is the key aspect of suggested lifestyle changes. Primary prevention aims to reduce or modify hypertension risk factors through the implementation of appropriate policies and educative programs, in order to avoid or delay the development of cardiovascular disorders, whereas, primordial prevention focuses on the prevention of the emergence of risk factors and hence, the importance of the present study.

CONCLUSION

The present study identified gaps in the knowledge regarding risk factors of hypertension among Prince Nasser Bin Saad Al-Sudery hospital, which may not be representative of all colleges and university students. A larger study in the region is essential to gather such information about hypertension; as it is crucial to devise sound prevention and control programs, to improve knowledge attitudes and lifestyle practices early in life, to control hypertension.

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Study of Kramerias Traditional Medicine For Wound H
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كليه الصيدله وطب الأسنان
قسم الصيدلة
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Evaluation of metered-dose inhaler technique demon
community pharmacists in Buraydah, Bukeria and Al-
Qassim region, Saudi-Arabia
Yahya Mohammed Al-Hendi*, Shamshir Khan
ABSTRACT
1. INTRODUCTION
2. RESEARCH METHODOLOGY
3. RESULTS AN


tic Activity of Bacteria and Fungi: A Review"
3. Antidiabetic ac
Availability and needs of herbal medicinal
resources at community pharmacy, Buraydah,
Qassim Region, Saudi Arabia