

GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 7-8 (352-353) Июль-Август 2024

ТБИЛИСИ - NEW YORK



ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press.
Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman (Кириллица)**, для текста на грузинском языке следует использовать **AcadNusx**. Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - <http://www.spinesurgery.ru/files/publish.pdf> и http://www.nlm.nih.gov/bsd/uniform_requirements.html В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректур авторам не высылаются, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - **Times New Roman (Cyrillic)**, print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

**Articles that Fail to Meet the Aforementioned
Requirements are not Assigned to be Reviewed.**

ავტორთა საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx**. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფხიხლებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

Yevchuk YuI, Rozhko MM, Pantus AV, Yarmoshuk IR, Pantus PV. ANALYSIS OF THE CLINICAL EFFECTIVENESS OF USING THE CREATED COMBINED FIBRIN-BONE SCAFFOLD FOR THE RECONSTRUCTION OF BONE TISSUE DEFECTS OF THE JAWS.....	6-13
Anton Yu. Postnov, Tatiana V. Kirichenko, Yuliya V. Markina, Petr V. Chumachenko, Andrey V. Suslov, Alexandra G. Ivanova, Eduard R. Charchyan, Alexander M. Markin. INFLAMMATORY FACTORS IN DISSECTION OF THORACIC AORTIC ANEURYSM.....	14-17
Gohar Arajyan, Qristine Navoyan, Nvard Pahutyanyan, Hovhannes Hunanyan, Anahit Pogosyan, Hrachik Gasparyan. COMPREHENSIVE STUDY OF ANTIOXIDANT ACTIVITY OF OXALIC ACID DIAMIDE DERIVATIVES AND THEIR EFFECT ON THE CONCENTRATION OF MALONIC DIALDEHYDE IN THE BRAIN AND LIVER TISSUES OF WHITE RATS.....	18-23
Nino Abesadze, Jenaro Kristesashvili, Arsen Gvenetadze. LOW 25OHD IN ENDOMETRIOSIS- RISK FACTOR OR CONSEQUENCE?!.....	24-31
Stepanyan L, Lalayan G. STRESS RESILIENCE AND DECISION-MAKING UNDER PRESSURE: ENHANCING ATHLETIC PERFORMANCE IN COMPETITIVE SPORTS.....	32-37
Hasan M. Abed, Abdulameer M. Hussein, Sabah N. Jaber. ENDOVASCULAR INTERVENTIONS: A NEW INSIGHTS AND CLINICAL PRACTICE.....	38-46
Changsheng He, Jian Liu, Linhai Xu, Fanhua Sun, Yan Wang, Jia Lou. THE RELATIONSHIP BETWEEN SERUM INFLAMMATORY CYTOKINES AND HYPERLIPIDEMIC ACUTE PANCREATITIS.....	47-49
Artemov O.V, Lytvynenko M.V, Chumachenko I.V, Bondarenko A.V, Dotsenko N.V, Ostapchuk K.V, Koshelnyk O.L, Gargin V.V. THE INFLUENCE OF THE DEMODEX MITE ON THE MORPHOLOGICAL PICTURE OF EYELID PAPILOMA.....	50-54
Othman K.M. Al-Sawaf, Mahmoud AM Fakhri. CHARACTERIZATION OF SERUM SERINE PROTEASE BIOCHEMICAL PROFILE IN PATIENTS WITH RENAL FAILURE.....	55-58
Sergey Lee, Marat Assimov, Yuriy Ignatiev, Fatima Bagiyarova, Gulbanu Absatarova, Aizhan Kudaibergenova, Sholpan Mardanova, Tatyana Tsapenko, Baimakhan Tanabayev, Assel Ibrayeva, Anel Ibrayeva, Ildar Fakhradiyev. PREVALENCE AND FACTORS OF PROFESSIONAL BURNOUT AMONG PRIMARY HEALTHCARE WORKERS IN THE REPUBLIC OF KAZAKHSTAN: RESULTS OF A NATIONAL STUDY.....	59-68
I.A. Yusubov. RESULTS OF PERCUTANEOUS TREATMENT OF LIMITED FLUID FORMATIONS AFTER ABDOMINAL SURGERY.....	69-74
Nawar M. Abd-alaziz, Ammar L. Hussein, Mohammed M Abdul-Aziz. STUDY THE RELATIONSHIP BETWEEN OSTEOPROTEGERIN AND KIDNEY INJURY MOLECULE-1 AND SOME BIOCHEMICAL VARIABLES IN PATIENTS WITH KIDNEY STONES.....	75-78
Tsisana Giorgadze, Tinatin Gognadze. SUBSTRATE SPECIFICITY OF β -GLUCOSIDASE FROM <i>YUCCA GLORIOSA</i> LEAVES.....	79-82
Sheishenov Zhalil, Kemelbekov Kanatzhan, Joshibaev Seitkhan, Turtabaev Baglan, Zhunissov Bakhytzhani. COMPARATIVE ANALYSIS OF THE CLINICAL RESULTS OF PATIENTS WITH ASD OPERATED VIA RIGHT ANTERIOR MINITHORACOTOMY AND MEDIAN STERNOTOMY.....	83-88
Sosonna L, Ohurtsov O, Piriatska N, Vdovitchenko V, Seleznova R, Kolba O, Gryzodub D, Rozhkova O, Shevtsov O. INDIVIDUAL ANATOMICAL VARIABILITY OF THE SKULL'S FACIAL SECTION CONSIDERING GENDER AND CRANIOTYPE BASED ON COMPUTED TOMOGRAPHY DATA.....	89-95
Osminina M.K, Aslamazova A.E, Podchernyaeva N.S, Khachatryan L.G, Velikoretskaya M.D, Chebysheva S.N, Polyanskaya A.V. SYSTEMIC OR LIMITED IS HEMISCLERODERMA OF FACE IN A PERSON WITH UVEITIS? EXPERIENCE OF 10 CASES OF UVEITIS IN HEMISCLERODERMA OF FACE FROM ONE RHEUMATOLOGY CENTER.....	96-100
F.T. Khalilova, A.A. Kerimov. CLINICAL AND LABORATORY CHARACTERISTICS OF THE LATENT FORM OF POLYCYTHEMIA VERA.....	101-105
Ahlan S. Ibrahim, Sukayna H. Rashed. ISOLATION AND PURIFICATION OF TRANSGLUTAMINASE 1 USING BIOCHEMICAL TECHNIQUES.....	106-111
Tingting Li, Xu Zhang, Baohong Xue, Lianping He, Qiaoqiao Chen, Dexun Zhao. THE RELATIONSHIP BETWEEN MENTAL HEALTH AND PHYSICAL ACTIVITY AMONG STUDENTS FROM A PRIVATE UNIVERSITY: A CROSS-SECTION STUDY.....	112-117
Narkhojayev Nurgali, Turmetov Ibadulla, Kemelbekov Kanatzhan, Bektayev Erkebai, Akhmetov Almasbek, Zhunissov Bakhytzhani. RESULTS OF SURGICAL TREATMENT OF PECTUS EXCAVATUM IN CHILDREN AND ADOLESCENTS.....	118-122

Krushelnyska HL, Batryn OV, Ryzhenko LM, Lytvyn NA, Dobrianska NV, Lyga AI. INFORMATION FACTORS OF MEDIA INFLUENCE ON THE FORMATION OF STATE POLICY IN THE FIELD OF LEGAL REGULATION OF BIOMEDICAL TECHNOLOGIES.....	123-129
Vahe Ashot Ter-Minasyan. EVALUATION OF KNOWLEDGE AND ATTITUDE REGARDING CERVICAL CANCER SCREENING PRACTICE: A MULTICENTER REGIONAL STUDY.....	130-136
Muhsin S.G. Almozic'1, Abbas A. Khudhair, Falah Hassan Shari. REMEDIAL INTERVENTION OF FERTILITY AGENT AND GENE 35 ON INDUCED CYSTIC OVARY IN RATS.....	137-141
Rongzheng Yuan, Hui Wang, Jing Chen. THE EFFECT OF LOW MOLECULAR WEIGHT HEPARIN SODIUM IN THE TREATMENT OF ACUTE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE COMORBID WITH PULMONARY HEART DISEASE ON PROMOTING THE BALANCE OF BLOOD VESSELS.....	142-146
Arailym Maikenova, Alexander Nersesov, Elmira Kuantay, Mukhtar Kulimbet, Massimo Giuseppe Colombo, Chavdar Pavlov, Yerkezhan Yerlanova. EVALUATION OF PREDICTORS OF INEFFECTIVENESS OF ANTIVIRAL THERAPY FOR CHRONIC HEPATITIS C IN THE REPUBLIC OF KAZAKHSTAN: A MATCHED CASE-CONTROL STUDY.....	147-154
Ahmed N. Ali, Muna A. Kashmoola. EVALUATION OF PROTEIN C AND S IN β -THALASSEMIA MAJOR.....	155-160
Sh.Tsiklauri, N.Nakudashvili, M.Lomaia. EFFECT OF INTRANASAL ELECTROPHORESIS WITH 5% POTASSIUM IODATE SOLUTION ON CLINICAL OUTCOME OF PATIENTS WITH HYPERTROPHIC RHINITIS.....	161-164
Fang Xu, Zhijuan Xu, Ming Li. INTRAVITREAL INJECTION CONBERCEPT IMPROVES THE BEST-CORRECTED VISUAL ACUITY IN PATIENTS WITH WET AGE- RELATED MACULAR EDEMA.....	165-167
Lilit Darbinyan, Margarita Danielyan, Vergine Chavushyan, Karen Simonyan, Michael Babakhanyan, Lilia Hambardzumyan, Larisa Manukyan, Kristine Karapetyan, Lusya Hovhannisyan. THE PROTECTIVE EFFECTS OF SELENIUM-ENRICHED HYDROPONIC RADISH ON PARACETAMOL-INDUCED LIVER DAMAGE IN RATS.....	168-172
Grygorova A.O, Grygorov S.M, Yaroslavska Yu.Yu, Mykhailenko N.M, Demyanyk D.S, Steblianko A.O, Rak O.V, Voloshan O.O, Nazaryan R.S. SIGNS OF ORAL CAVITY MICROCIRCULATORY DISORDERS IN ADOLESCENTS WHO SMOKE.....	173-177
Ali H. Kadhim, Nihad N. Hilal, Taghreed AH. Nassir. A COMPARATIVE STUDY ON THE VARIABLE EFFECTS OF ALCOHOL AND NON-ALCOHOL-RELATED FATTY LIVER DISEASE ON METABOLIC AND INFLAMMATORY BIOMARKERS.....	178-182
Papoyan Varduhi, Galstyan Alina, Sargsyan Diana. FACTOR ANALYSIS OF THE COMPETENCIES OF PERSONAL RESOURCES OF SPECIALIST.....	183-189
Chulpanov Utkir, Turdaliyeva Botagoz, Buleshov Myrzatai, Zhanabaev Nurlan, Kanatzhn Kemelbekov. COMPARATIVE EVALUATION OF THE EFFECTIVENESS OF INNOVATIVE HIGH-TECH CARDIAC SURGERY IN PATIENTS WHO HAVE SUFFERED AN ACUTE MYOCARDIAL INFARCTION.....	190-195
Tea Charkviani, Jenara Kristasashvili, Tamar Barbakadze, Mariam Gabadze, Tamar Kbilashvili, Mariam Makharadze. THE RELATIONSHIP BETWEEN FOLLICLE SIZE, OOCYTE MATURATION, BLASTOCYST FORMATION, BLASTOCYST PLOIDY, AND PREGNANCY OUTCOMES IN YOUNG WOMEN UNDERGOING IVF.....	196-203
Yunfei Wu, Koulong Wu, Tianhua Du. STUDY ON THE EFFECTS OF ART PAINTING COMBINED WITH SPORTS ON MYOPIA PREVENTION AND VISION IMPROVEMENT.....	204-207
Lulëjeta Ferizi-Shabani, Shefqet Mrasori, Valbona Ferizi, Gonxhe Barku, Milazim Gjocaj, Blerim Krasniqi, Basri Lenjani. EVALUATION OF DENTAL AND PERIODONTAL STATUS IN CHILDREN WITH TYPE 1 DIABETES MELLITUS.....	208-212
Rana Dawood Salman Al-kamil, Mustafa Ragheb Abed, Sanaryh Mohammed Al-awad, H. N. K. AL-Salman, Hussein H. Hussein, Dawood Chaloob Hilyail, Falah Hassan Shari. ISOLATION, CHARACTERIZATION, AND ANTIHYPERTENSIVE ACTIVITY ALKALOIDS EXTRACTED FROM THE LEAVES OF THE ALSTONIA SCHOLARIS PLANT.....	213-217
Tchernev G, Broshtilova V, Kordeva S. SHARK PEDICLE ISLAND FLAP FOR BASAL CELL CARCINOMA OF THE PERIALAR ZONE OF THE NOSE: PHOTOTOXICITY AND PHOTOCARCINOGENICITY MEDIATED BY POTENTIALLY NITROSAMINE CONTAMINATED DRUG INTAKE -A NEW EXPLANATION FOR THE SKIN CANCERS PATHOGENESIS?	218-222

Meruert T. Orazgalieva, Meyrbek J. Aimagambetov, Zhanna D. Bryzhakhina, Serik D. Zhanybekov, Ainash S. Orazalina. RISK FACTORS FOR THE DEVELOPMENT OF COAGULOPATHY DURING SURGERY IN MECHANICAL JAUNDICE.....	223-228
Noor N. Noori, Nawal A. Murtafha. UNCONTROLLED TYPE 2 DIABETES MELLITUS MODULATED PLASMA LEVELS OF LIPID CATABOLIC PROTEINS.....	229-233
Ling-Ling Zhou, Zhou-Zhou Lin, Lian-Ping He. PREVALENCE OF DEPRESSION AMONG UNIVERSITY STUDENTS IN CHINA: A PROTOCOL FOR A SYSTEMATIC REVIEW AND META-ANALYSIS.....	234-236
Nadine Khayyat, Sima Kalalfeh, Suha Khalifa. OPTIMISING THE CLINICAL ASSESSMENT OF CHILDHOOD AND ADOLESCENT OBESITY IN JORDAN.....	237-241
Shuasheva Y.A, Buleshov M.A, Kemelbekov K.S. CLINICAL, IMMUNOLOGICAL AND THESIOGRAPHIC CHARACTERISTICS RHEUMA-TOID ARTHRITIS AND CHRONIC RHEUMATICHEARTDISEASE.....	242-248
Sana A. Abdulmawjood, Eman S. Mahmoud, Rana T Altaee. ASSESSMENT OF CIPROFLOXACIN EFFECTS ON SOME CHICKS' ORGANS: A COMPREHENSIVE BIOCHEMICAL AND HISTOLOGICALSTUDY.....	249-254
Knarik V. Kazaryan, Naira G. Hunanyan, Margarita H. Danielyan, Rosa G. Chibukchyan, Yulia Y. Trofimova, Arus V. Mkrtychyan, Kristine V. Karapetyan, Karwan H. Syan, Tatevik A. Piliposyan. REGULATION OF SPONTANEOUS ELECTRICAL ACTIVITY IN THE ORGANS OF RE-PRODUCTIVE SYSTEM BY OXYTOCIN.....	255-259
Lantukh I.V, Kucheriavchenko V.V, Yurko K.V, Bondarenko A.V, Merkulova N.F, Mohylenets O.I, Gradil G.I, Bondar O.Ye, Bodnia I.P, Burma Ya.I, Tsyko O.V, Tkachenko V.G. PSYCHOLOGICAL FEATURES OF REHABILITATION OF HIV-INFECTED PATIENTS.....	260-264
Serikbayeva Saltanat, Shaimerdenova Gulbanu, Ormanov Namazbai, Ormanov Talgat, Abuova Gulzhan, Kaishibayeva Gulnaz, Kemelbekov Kanatzhan. PEROXIDATION OF SALIVA LIPIDS IN PATIENTS WITH POSTCOVID SYNDROME DURING HIRUDOTHERAPY.....	265-269
M.V. Poghosyan, H.Y. Stepanyan, Avetisyan Z.A, J.S. Sarkissian. THE EFFECTS OF HYDROCORTISONE ON SYNAPTIC PROCESSES IN PARKINSON'S DISEASE UNDERLYING THE POTENTIAL THERAPEUTICSTRATEGIES.....	270-277
Changsheng He, Jian Liu, Linhai Xu, Fanhua Sun. THE EFFECT OF PERCUTANEOUS CATHETER DRAINAGE COMBINED WITH SOMATOSTATIN ON INFLAMMATION AND PLASMA THROMBOXANE 2, PROSTACYCLIN I2 LEVELS IN PATIENTS WITH SEVERE PANCREATITIS.....	278-283
Tea Chitadze, Nino Sharashidze, Tamar Rukhadze, Nino Lomia, Giorgi Saatashvili. EVALUATION OF LEFT VENTRICULAR SYSTOLIC FUNCTION IN POSTMENOPAUSAL WOMEN WITH BREAST CANCER RECEIVING ADJUVANT ANTHRACYCLINE AND TRASTUZUMAB THERAPY: A 2-YEAR FOLLOW-UP STUDY.....	284-293

ISOLATION, CHARACTERIZATION, AND ANTIHYPERTENSIVE ACTIVITY ALKALOIDS EXTRACTED FROM THE LEAVES OF THE ALSTONIA SCHOLARIS PLANT

Rana Dawood Salman Al-kamil¹, Mustafa Ragheb Abed², Sanaryh Mohammed Al-awad³, H. N. K. AL-Salman^{4*}, Hussein H. Hussein⁵, Dawood Chalooob Hilyail¹, Falah Hassan Shari³.

¹Department of Clinical and laboratory science, College of Pharmacy, University of Basrah, Iraq.

²Pharmacists Department, College of Pharmacy, University of Basrah, Iraq.

³Almaaqaal University, College of Pharmacy, Basrah, Iraq.

⁴Department of Pharmaceutical Chemistry, College of Pharmacy, University of Basrah, Iraq.

⁵Department of Chemistry, College of Science, University of Basrah, Iraq.

Abstract.

The study aims to investigate the Isolation, Characterization & Antihypertensive Life of Natural Alkaloids out of certain Selected Plants. The *Alstonia scholaris* papers used in this study are generally available in the tropics and can be obtained in Asia. The plant sample was verified by the pharmacognosy and pharmacology department. The powdered leaves of *Alstonia scholaris* (500 gm) are macerated using 1% HCl (pH 2) at space temperature overnight. After that, the combination was produced alkaline by putting 25% NH₄OH solution (pH 9). The combination's color changed from the red wine to the black. The alkaline mixture was then bounced satisfactorily and purified using Whatman filter paper. Four fractions (15-19) were collected from column chromatography. All the fractions have shown the same R_f value in the TLC fingerprint, therefore they are incorporated established on TLC analysis generated in Hexane: Ethyl acetate (14:6). Nitric oxide synthase inhibitor, i.e. N-nitro-L-arginine methyl ester was used to produce hypertension in rats in (40 mg/ml/kg, i.p.). Every day, it is solubilized in 0.9 per cent NaCl solution. Colourless powder compound was obtained (yield 0.4%) and having MP 132-1340 C. R_f value in (Hexane: Ethyl acetate,65:35) at 0.55, UV-Vis λ_{max} in methanol: (nm) 297, IR (KBr), m 913 (N-H bending), 1260 (C-N Stretching), 1396 (C-N), 1165, 1259 (-C-O- stretching) 1396, 1464 (C=C, Ar.), 2831, 2928 (C-H, Aliphatic) and 3564, 3315 (N-H Stretching). The 1H NMR spectrum also portrayed the distinctive peaks for various chemical compounds. The peak of 7.28-8.85 ppm was due to multiple aromatic protons. The 6.94-7.04 ppm peaks were characteristic of ethylene amino protons, and the 1.57-2 ppm peaks were allocated to alcohol protons. L-NAME significantly elevated MABP, SBP, and DBP in pentobarbital-anesthetized rats but not HR. The mean arterial blood pressure, systolic blood pressure and diastolic blood pressure of pentobarbital-anesthetized L-NAME caused hypertensive rats do not alter after a single intragastric injection of the isolated alkaloid. Finally, isolated alkaloids from *Alstonia scholaris* supplement had antihypertensive properties in hypertensive rats.

Key words. Isolation, characterization, antihypertensive activity, natural alkaloids, selected plant, *Alstonia scholaris*.

Introduction.

Hypertension, often known as high blood pressure, is the most prevalent reason for going to the doctor, with over

twenty million visits every year. Hypertension affects persons of all ages, from children to the elderly, with higher rates in the elderly, particularly those aged 50 and up. High blood pressure, often known as hypertension, is the most common cardiovascular illness, afflicting nearly one billion people worldwide and being a primary cause of morbidity and mortality [1,2]. Chronic diseases are expected to account for over three-quarters of all deaths by 2020, with 71 percent of deaths owing to cardiovascular disease and 75 percent of deaths due to stroke occurring in developing countries. Hypertension affected roughly 26.4 percent of the worldwide people in 2000, and it is rising at an alarming rate, with a predicted 60 percent by 2025. It is tough to diagnose high blood pressure because it does not have manifestations. Thus, many individuals' hypertension is not generally properly made due. A few cardiovascular issues, including [3,4], myocardial dead tissue, arteriosclerosis, end-stage renal infection, congestive cardiovascular breakdown, coronary illness, and stroke, are connected to hypertension. It additionally causes variant renal capacity, which prompts renal disappointment [5-7].

The present study's findings would be extremely beneficial to researchers because they attempt to fill a gap in the existing literature by providing new insights into the spectrum of all plants used for antihypertensive activity and active phytoconstituents, thereby bolstering ongoing research and development as a preventive and disease-modifying agent using novel delivery strategies.

Materials and Methods.

Identification and collection of plant material:

The Identification of *Alstonia scholaris*, commonly called blackboard tree, scholar's tree, milk tree or devil's tree in English [7], is a tropical evergreen tree in the Apocynaceae family. It is native to southern China, tropical Asia (especially the Indian subcontinent and Southeast Asia) and Australia, where it is a popular ornamental plant. It is a poisonous plant, but has been traditionally used for a variety of ailments and complaints. Called "Saptaparna" in India, it is the sacred tree of the Than Jain Tirthankar Ajitnatha. A vigorous tree prefers well-drained soil. Matures in 8-10 years. Propagated by cuttings (which root readily in sand), and seeds (collected from mature, undivided roots).

The *Alstonia scholaris* papers used in this study are generally available in the tropics and can be obtained in Asia. The plant

sample was verified by the pharmacognosy and pharmacology department. The voucher specimen was stored for potential use in the future. *Alstonia scholaris* were collected, washed, and dried at 40°C for one hour, followed by drying at room temperature. After complete drying, the leaves were pulverized by a mechanical grinder. After that, the powdered material was sieved at 40 mesh and stored in an airtight container. The alkaloids were extracted from the dried powdered substance.

Isolation and characterization of alkaloid:

Overnight at ambient temperature, 500 grams of powdered *Alstonia scholaris* leaves were macerated in 1% HCl (pH 2). After that, 25% NH₄OH solution (pH 9) was added to the mixture to turn it alkaline. The mixture turned from red wine to black color. After giving the alkaline combination a good shake, Whatman filter paper was used to filter it. Chloroform was used to extract the concentrated filtrate in stages. Ultimately, the chloroform extract was dried by evaporating it at 300 degrees Celsius, yielding 19.2 grams of dried residue. Column chromatography was used to separate the residue. The solution was being chromatographed above a silica gel column in a nutshell (60-80 mesh). On the column, enough time was allowed for fraction segregation and stabilization. After leaving the solvent in the column for 10 minutes to allow proper partitioning, the first elution was performed with hexane (50 ml). At a rate of 20-25 drops per minute, each 10 ml fraction was gathered in 5 test tubes. The collected fractions were exposed to chromatography for the isolation of alkaloids [8].

Isolation of active constituents:

Four fractions (15-19) were collected from column chromatography. The fractions were merged based on TLC analysis developed in Hexane: ethyl acetate (14:6) since all fractions displayed the same R_f value in the TLC fingerprint. The chemical tests (Mayer, Dragendroff, and Wagner) were run on TLC plates in a saturated iodine chamber to determine the constituent parts. The concentrated fraction was refrigerated for crystallization overnight, and the crystallized compound's m.p. was tracked [9].

Characterization of Isolated Alkaloids:

A UV/Visible in C₂H₅OH was used to quantify the UV spectrum at room temperature carefully. TLC was purposefully carried out using 0.25 mm-wide, thick Silica gel G plates (CDH, New Delhi). The TLC was detected by their UV fluorescence and by iodine vapour. Silica gel 60-120 mesh was used for column chromatography (CDH, New Delhi). Softening focuses are not really set in stone utilizing open vessels on a Cintex dissolving point mechanical assembly. The IR range was recorded on the range FTIR spectrometer. ¹H NMR range was estimated on 400 MHz spectrometers involving TMS as an inside norm. The substance shifts were accounted for in ppm (δ). mass spectrometer filtered in a mass range [10].

Antihypertensive Activity if Isolated Constituents.

Experimental Rats:

Wistar rats strain of male gender (200-250 g) are being acquired from Animal Care. They were kept in conventional laboratory settings with free access to nouriture.

L-NAME Induced Hypertension:

L-NAME in a dose of 40 mg/ml/kg, i.p., was used to cause hypertension in lab rats in an experiment. Day after day, the L-NAME solution was prepared with 0.9 percent NaCl saline solution.

Experimental Procedure:

To anesthetize the rats, Sodium pentobarbital in a dose of 50 mg/kg, i.p. was used. To aid spontaneous respiration, the trachea was exposed and cannulated, as well as the left carotid artery. The stomach was intubated in order to administer the medicines intragastrically. A pressure transducer connected to a Power Lab system with a Chart program (AD Instruments) was used to record the blood pressure directly by carotid artery cannulation. Softening focuses are not really set in stone utilizing open vessels on a Cintex dissolving point mechanical assembly. The IR range was recorded on the FTIR spectrometer. ¹H NMR range was estimated on 400 MHz spectrometers involving TMS as an inside norm. The substance shifts were accounted for in ppm (δ). mass spectrometer filtered a mass range [11-13].

Statistical analysis:

Statistical analysis was carried out using Sigma Stat and two-way repeated-measures ANOVA (version 3.5). P-values less than 0.05 were considered as a Statistical significance.

Results and Discussion.

Identification of alkaloid: Colorless powder compound with MP 132-134°C was obtained (yield 0.4 percent). The ultra-violet spectrum of alkaloid in methanol solvent shows a band at 297nm can be attributed to π-π transition.

The FT-IR spectrum (as KBr disc) shows all the expected bands in fingerprint and other regions. The asymmetrical and symmetrical aliphatic C-H are responsible for the strong bands in the FTIR spectra at 2928 and 2831 cm⁻¹. Furthermore, it is possible to trace the stretching of the N-H bond to a broad band centred at 3564 cm⁻¹ and its bending vibration to a medium band positioned at 913 cm⁻¹. The symmetrical and asymmetrical aromatic C=C bonds can be used to explain the two strong bands at 1464 and 1396 cm⁻¹, respectively. The stretching vibration bands of the C-N and C-O bonds result in two strong bands at 1260 and 1265 cm⁻¹.

On the other hand, ¹H NMR spectrum of alkaloid compounds shows the following signals in a hexane: ethyl acetate mixture as a solvent: (2:1) (N-H Stretching). 8.58 (4 H, s, H-1, H-3, H-5, H-8), 7.2 (1 H, m, H-4), 7.07 (1 H, m, H-6), 6.94 (1 H, m, H-7), 3.39 (N-H), and 2.4 (H-O), 2- naphthyl amino ethanol [8-10].

Column fractionation and chromatographic profile of chloroform extract of leaves and their R_f values showed alkaloid isolation in the chloroform extract. The isolated compound showed a single spot in the chromatogram revealed the isolated compound is single phytoconstituents and has R_f value 0.55 in Hexane: Ethyl acetate (65:35). It has shown the same after being kept in a saturated iodine chamber. Isolated compound treated with alkaloids tests positive. It was crystallized, and the melting point was found 134°C. The UV spectrum λ_{max} (CH₃OH) revealed an absorption band at 297 nm. A colorless powder compound has sharp MP 132-134°C, and one spot in TLC (R_f = 0.55). The removed compound was portrayed and

affirmed dependent on unearthy investigations ($^1\text{H-NMR}$, IR, and Mass spectra).

The atomic equation of $\text{C}_{12}\text{H}_{13}\text{ON}$ (47.2) and 187 [M] $^+$. The IR spectrum of compound 2-naphthyl amino ethanol has an absorption in the region 3565-3315 cm^{-1} indicated the presence of NH. The $^1\text{H-NMR}$ spectrum of the compound showed a signal for NH protons at δ four ppm, whereas the 2-naphthalene ethyl and alcohol groups were easily detected at their characteristic chemical shifts.

The IR spectra of the compound exhibited broad and medium intensity bands near 3565-3315 cm^{-1} due to NH and hydrogen-bonded OH, respectively. The intense bands at 2928-2831 cm^{-1} represented the asymmetric C-H stretching of the solvent. The corresponding bending vibrations appeared at 1363, 1396 and 1338, respectively. The presence of the aromatic system was confirmed by the combination of bands and aromatic overtones that appeared in the 2331, 1836, 1793, and 1741 areas. The 1678, 1645, 1546, 1539, and 1516 cm^{-1} bands aligned with the aromatic system's skeletal vibrations. Bending vibration in the O-H plane was responsible for the bands at 1260 and 1132 cm^{-1} . The substitution pattern is corroborated by substantial C-H out-of-plane bending absorption at 913 cm^{-1} (Figures 1 and 2).

Also visible in the $^1\text{H-NMR}$ spectra were the distinctive peaks

associated with various chemical substances. Various aromatic protons caused the peaks between 7.28 and 8.85 ppm. The 1.57–2 ppm range peaks were attributed to alcohol protons, whereas the 6.94–7.04 ppm peaks were typical of ethylene amino protons. Owing to trans protons or the ethylene group, two doublets in the 7.5–8 ppm range with a coupling constant of 15–16 Hz were highly distinctive.

The specific protons in the compound were also represented by other peaks in the $^1\text{H-NMR}$ spectra of various compounds. The exact mass or fragmentation daughter peak is shown at 187 [M] $^+$ confirms the compound of the desired alkaloid with molecular formula $\text{C}_{12}\text{H}_{13}\text{ON}$ [11-13].

The Effect of both Arterial BP and HR of Anesthetized Hypertensive lab Rats:

Alstonia scholaris elevated all different blood pressures in pentobarbital-anesthetized rats, but not HR (Figure 3). The mean arterial blood pressure, systolic blood pressure, and diastolic blood pressure of pentobarbital-anesthetized *Alstonia scholaris* caused hypertension in rats did not change after a single intragastric injection of the isolated alkaloid (4, 8, and 32 g/20 ml/kg). Compared to control, an alkaloid (16 g/20 ml/kg) effectively reduced high MABP and DBP 90 minutes after treatment (DDD water). When compared to control, an isolated

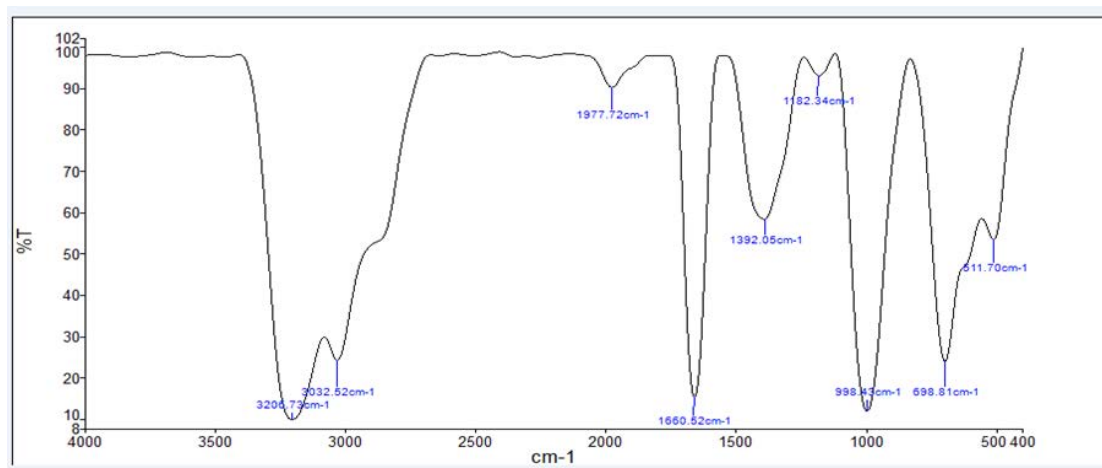


Figure 1. FT-IR spectrum of isolated alkaloid.

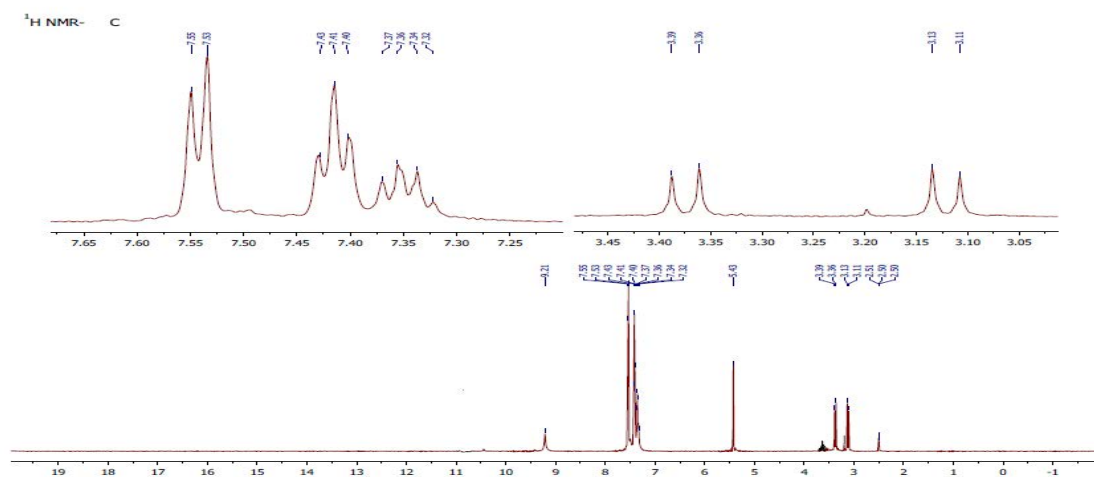


Figure 2. The $^1\text{H-NMR}$ spectrum of alkaloid.

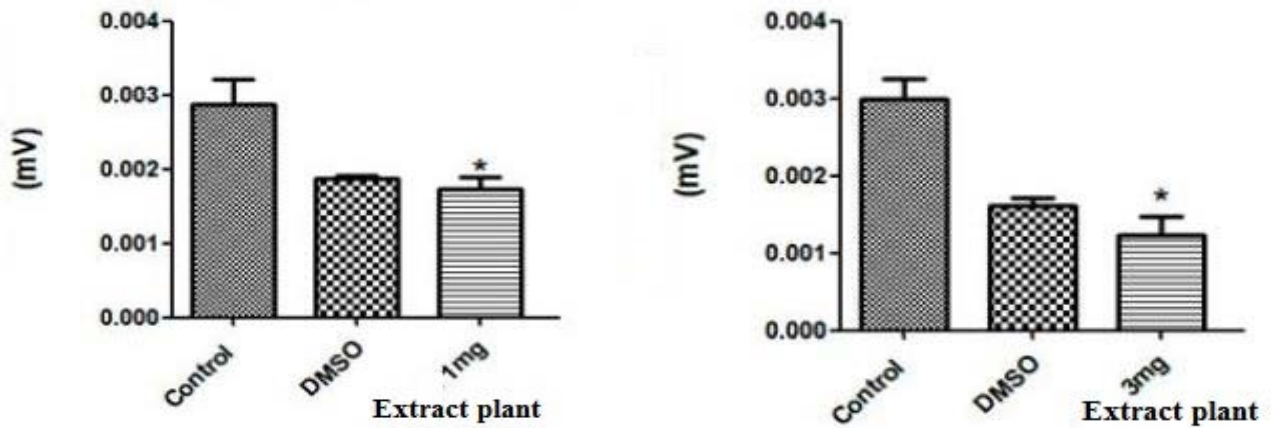


Figure 3. The effects of individual alkaloids on MABP in hypertensive rats that had been anaesthetized.

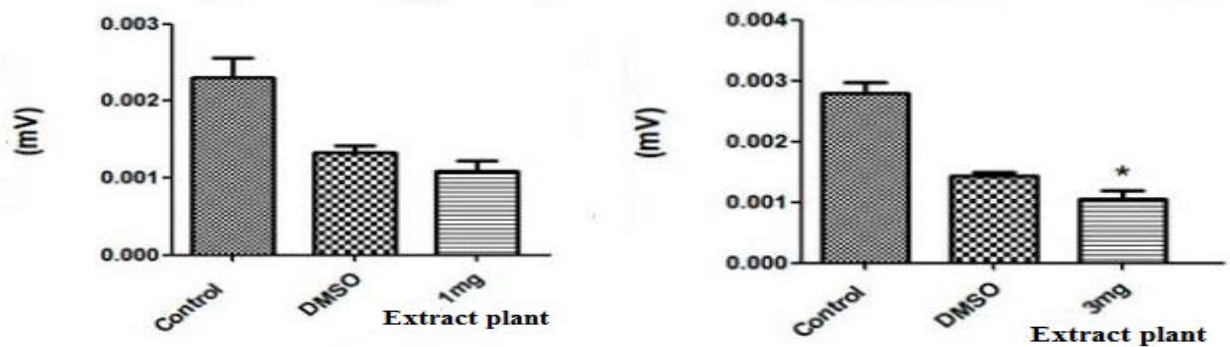


Figure 4. SBP of anesthetized hypertensive lab rats after exposure to isolated alkaloids.

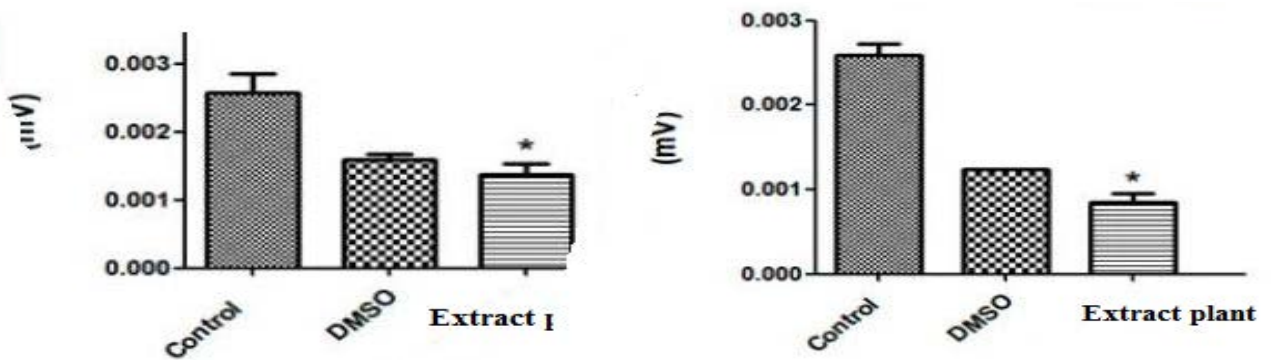


Figure 5. Effects of individual alkaloids on systolic blood pressure in anesthetized hypertensive rats.

Black square, black triangle and lead triangle represent the isolated alkaloid at 16 and 32 g/kg orally and the standard flavonoid i.e. quercetin at 5 mg/kg.

In our study, we found that the isolated alkaloid at 16 and 32 g/kg orally significantly and moderately reduced blood pressure compared to the disease control group. Similarly, quercetin at 5 mg/kg also significantly reduced blood pressure compared to the disease control group.

alkaloid (16 g/20 ml/kg) significantly reduced high SBP throughout a 75–90-minute timeframe (DDD water). Compared to control, the high MABP decreased significantly from 10 to 90 minutes after Quercetin (5 mg/20 ml/kg) was administered. Quercetin effectively reduced high SBP and DBP over the 45–90-minute interval following dosing. HR was unaffected by all dosages of different alkaloids and Quercetin [14–16].

In *Alstonia scholaris* incited hypertensive rodents, secluded alkaloid at centralization of 16 g/20 ml/kg (i.g.) and its flavonoid Quercetin at a 5 mg/20 ml/kg (i.g.) had antihypertensive impacts. The treatment of alkaloids brought about critical decreases in

expanded MBP, SBP, and DBP in *Alstonia scholaris* actuated hypertensive rodents. These outcomes recommend that *Alstonia scholaris* affected L-NAME-incited hypertensive rodents [17,18].

Muangnongwa (2004) revealed that alkaloids (32 g/kg, p.o.) could bring down systolic blood pressure in deoxycorticosterone acetic acid derivation salt-actuated hypertension rodents yet had no effect in normotensive rodents.

In *Alstonia scholaris* incited hypertension rodents, the flavonoid quercetin had hypotensive properties. In *Alstonia scholaris* actuated hypertension rodents, quercetin significantly

decreased expanded MBP, SBP, and DBP. These discoveries add to late research that showed quercetin could assist hypertensive creatures with decreasing their circulatory strain. In *Alstonia scholaris* initiated hypertension rodents, segregated alkaloids and Quercetin treatment didn't influence pulse (Figures 4 and 5) [19-22].

Mechanism behind the antihypertensive:

The Elucidate the mechanism behind the antihypertensive effect of alkaloids extracted from *Alstonia scholaris* is an evergreen tree that is rich in indole alkaloids and has been used to treat lung diseases and several diseases. The primary indole compounds found in this plant are scholaricine, 19-episolaricine, vallesamine, and picrinine, which have been shown to exert toxic effects on non-rodents [22].

Conclusion.

Finally, isolated alkaloids from *Alstonia scholaris* supplement were antihypertensive properties in hypertensive rats. *Alstonia scholaris* extract's antihypertensive action may be due in part to quercetin.

Acknowledgment.

The authors thank the College of Pharmacy, Almaaqaq University, and the College of Pharmacy, University of Basrah, Iraq. This is to facilitate the authors' work in the laboratories of the College of Pharmacy, Al-maaqaq University, and the College of Pharmacy, Basrah University.

Author's contributions.

This research was carried out with the help of a group of professors from the College of Pharmacy, Almaaqaq University/ Iraq, and the authors from the College of Pharmacy, University of Basrah, Iraq.

REFERENCES

1. Adersen A, Adersen H. Plants from Reunion Island with alleged antihypertensive and diuretic effects—an experimental and ethnobotanical evaluation. *Journal of EthnoPharmacol.* 1997;58:189-206.
2. Actis-Goretta L, Ottaviani JI, Fraga CG. Inhibition of angiotensin converting enzyme activity by flavanol-rich foods. *Journal of Agricultural and Food Chemistry.* 2006;54:229-234.
3. Alasbahi R, Melzig MF. Screening of some Yemeni medicinal plants for inhibitory activity against peptidases. *Die Pharmazie.* 2008;63:86-88.
4. Barbana C, Boye JI. Angiotensin I-converting enzyme inhibitory properties of lentil protein hydrolysates: Determination of the kinetics of inhibition. *Food Chemistry.* 2011;127:94-101.
5. Bhandari U, Ansari MN, Islam F. Cardioprotective effect of aqueous extract of *Embelia ribes* Burm fruits against isoproterenol-induced myocardial infarction in albino rats. *Indian J Exp Biol.* 2008;46:35-40.
6. Carey RM, Siragy HM. Newly recognized components of the renin- angiotensin system: potential roles in cardiovascular and renal regulation. *Endocrine Reviews.* 2003;24:261-271.
7. *Alstonia scholaris*. Germplasm Resources Information Network. Agricultural Research Service, United States Department of Agriculture. 2012.

8. Davis KL, Nappi JM. The cardiovascular effects of eplerenone, a selective aldosterone-receptor antagonist. *Clinical Therapeutics.* 2003;25:2647-2668.
9. Al-Salman HNK, Jasim EQ. Analytical methods for diagnosis a mixture of narcotic substances in seized materials. *Int. J. Green Pharm.* 2018;12:216-226.
10. Ferrannini E, Seghieri G, Muscelli E. Insulin and the renin-angiotensin-aldosterone system: influence of ACE inhibition. *Journal of Cardiovascular Pharmacology.* 1994;24:S61-9.
11. Dewanto V, Wu X, Liu RH. Processed sweet corn has higher antioxidant activity. *Journal of Agricultural and Food Chemistry.* 2002;50:4959-4964.
12. Goyal S.K, Goyal RK. Stevia (*Stevia rebaudiana*) a bio-sweetener: a review. *International Journal of Food Sciences and Nutrition.* 2010;61:1-10.
13. Hamayun M, Khan A, Khan MA. Common medicinal folk recipes of District Buner, NWFP, Pakistan. *Ethnobotanical Leaflets.* 2003:14.
14. Izumitani Y, Yahara S, Nohara T. Novel acyclic diterpene glycosides, capsianosides AF and IV from *Capsicum* plants (Solanaceae studies. XVI). *Chemical and Pharmaceutical Bulletin.* 1990;5:1299-1307.
15. Oudah KH, Najm MA, Samir N, et al. Design, synthesis and molecular docking of novel pyrazolo [1, 5-a][1, 3, 5] triazine derivatives as CDK2 inhibitors. *Bioorganic chemistry.* 2019;92:103239.
16. Rana D S Alkamil, Dawood CH Al-Bahadily, RasoolChaloob, et al. Estimation of Sagebrush Extracts and Study the Biological Efficacy of Ethyl 6-methyl-2oxo-4-(2-thienyl)-1,2,3,4- tetrahydropyrimidine-5- carboxylate (SMPT) as One of the Extracts against Ophthalmic Bacteria. *Sys. Rev. Pharm.* 2020;11:878-887.
17. Hassan WN, Najm MA, Hasan AH, et al. Immunological aspects of Alpha 1 Antitrypsin in COVID-19 infection among the Populace and Pregnant Women. *Al-Kindy College Medical Journal.* 2021;17.
18. Riyadh Al-ani R, Salman Al-kamil RD, Qasim QA, et al. S-Methyl Propane Thiosulfonate (SMPT): An analytical study of the Biological activity of the isolated extract from the sagebrush, against three of the candida species. *Journal of Survey in Fisheries Sciences.* 2023;10:1588-1599.
19. H. N. K. AL-Salman, Ali ET, Almukhtar OA, et al. 2-benzhydrylsulfinyl-N-hydroxyacetamide extracted from fig: A good therapeutic agent against *Staphylococcus aureus*. *AIP Conference Proceedings.* 2020;2213.
20. Al-Sowdani K H, Al-Salman H.N.K. Determination of extracted methamphetamine from hashish narcotic plant by home-made ion chromatography system. *Int. J. Adv. Res.* 2015;3:723-730.
21. Al-Bahadily DCH, Shari FH, Najm MAA, et al. Antimicrobial Activity of the Compound 2-Piperidinone, N-(4-Bromo-n-butyl)- Extracted from Pomegranate Peels. *Asian J. Pharmaceutics.* 2019;13:46-53.
22. Bello I, Usman N, Mahmud R, et al. Mechanisms underlying the antihypertensive effect of *Alstonia scholaris*. *Journal of Ethnopharmacology.* 2015;175:422-431