An Open Access Peer Reviewed Journal

Asian Journal of Pharmaceutical & Clinical Research

INNOVARE ACADEMIC SCIENCES

Asian Journal of Pharmaceutical and Clinical Research
E-ISSN: 2455-3891
P-ISSN: 0974-2441
EMBASE

Vol 7 Suppl 2 (May-June) 2014

PUBLISHED: 01-05-2014

ARTICLES

PHYTOCHEMICAL SCREENING, HPTLC AND GC-MS PROFILING IN THE RHIZOMES OF ZINGIBER NIMMONII (J. GRAHAM) DALZELL

ASSAMAKANTAKATH FINOSE, VELLIYUR KANNIAPPAN GOPALAKRISHNAN

54-57

VIEW ABSTRACT PDF DOWNLOAD PDF

SCREENING AND EVALUATION OF BIOACTIVE COMPONENTS OF TAGETES ERECTA L. BY GC Â€“ MS ANALYSIS

DEVIKA R, JUSTIN KOVILPILLAI

58-60

VIEW ABSTRACT PDF DOWNLOAD PDF

CLONING AND CHARACTERIZATION OF HIGH RISK HUMAN PAPILLOMA VIRUS (HPV) ONCOGENE E6.

KARRAR ABDULAMEER JUMAAH, SUDHAKAR MALLA, R. SENTHIL KUMAR

61-65

VIEW ABSTRACT PDF DOWNLOAD PDF

INVESTIGATION OF ANTI-INFLAMMATORY ACTIVITY OF OINTMENTS CONTAINING FENUGREEK EXTRACT

DIVYA JYOTHI, MARINA KOLAND, SNEH PRIYA

66-69

VIEW ABSTRACT PDF DOWNLOAD PDF

IDENTIFICATION OF VARIATION IN CALRETICULIN GENE EXPRESSION LEVELS IN WHOLE BLOOD OF HEALTHY HUMAN SUBJECTS

SREE JAYA S, SUDHA S

70-72

VIEW ABSTRACT PDF DOWNLOAD PDF

INDICATING UPLC METHOD FORQUANTIFICATION OF RELATED COMPOUNDS OF ACETYLSALICYLIC ACID IN IT`S SOLID DOSAGE FORM

V.VENKATESWARA RAO, V.V.S.RAJENDRA PRASAD, M. BHAGAVAN RAJU

73-76

VIEW ABSTRACT PDF DOWNLOAD PDF

IN VITRO EVALUATION OF ANTIOXIDANT ACTIVITY OF AERIAL PART OF MAERUA APETALA. ROTH (JACOBS) (CAPPARACEAE)

M.PACKIA LINCY, V.R. MOHAN, S.JEEVA

77-81

VIEW ABSTRACT PDF DOWNLOAD PDF

ANTIMICROBIAL POTENTIAL OF SILVER NANOPARTICLES SYNTHESIZED USING ULVA RETICULATA

J. SARANIYA DEVI, B. VALENTIN BHIMBA

82-85

VIEW ABSTRACT PDF DOWNLOAD PDF

HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD DEVELOPMENT AND VALIDATION FOR THE SIMULTANEOUS DETERMINATION OF GALLIC ACID AND BETA SITOSTEROL IN AMPELOCISSUS LATIFOLIA (ROXB.) PLANCH

PARAG A. PEDNEKAR, VANITA KULKARNI, BHANU RAMAN

86-89

VIEW ABSTRACT PDF DOWNLOAD PDF

ANTIBACTERIAL ACTIVITY OF HYDROLYZED VIRGIN COCONUT OIL

JANSEN SILALAHI, YADE METRI PERMATA, EFFENDY DE LUX PUTRA

90-94

VIEW ABSTRACT PDF DOWNLOAD PDF

IN-VITRO ANTHELMINTIC ACTIVITY OF LEAF EXTRACTS OF SHOREA TUMBUGGAIA ROXB. AND HOLOSTEMMA ADA KODIEN SCHULT. ON (PHERETIMA POSTHUMA)INDIAN EARTHWORM.

RUBESH KUMAR SADASIVAM, CHENCHUGARI SRIDHAR, KORLAKUNTA NARASIMHA JAYAVEERA

95-97

VIEW ABSTRACT PDF DOWNLOAD PDF

FORMULATION AND EVALUATION OF MECLIZINE HYDROCHLORIDE FAST DISSOLVING TABLETS USING SOLID DISPERSION METHOD

BHASKAR DARAVATH, RAMA RAO TADIKONDA

98-102

VIEW ABSTRACT PDF DOWNLOAD PDF

TOXICOLOGICAL PROFILING OF METHANOLIC AND AQUEOUS EXTRACTS OF AMORPHOPHALLUS COMMUTATUS VAR. WAYANADENSIS - ENDANGERED MEDICINAL PLANT IN RODENT MODELS

SREENA RAJ, MERLENE ANN BABU, V. ABDUL JALEEL, K M GOTHANDAM

103-108

VIEW ABSTRACT PDF DOWNLOAD PDF

COMPARATIVE EVALUATION OF FEW MARKETED PRODUCTS OF AMOXICILLIN TRIHYDRATE DISPERSIBLE TABLETS IP

VAMSHI KRISHNA T, GIRISH PAI K, MOHAN SINGH, LALIT KUMAR, M SREENIVASA REDDY

109-110

VIEW ABSTRACT PDF DOWNLOAD PDF

FORMULATION AND EVALUATION OF MEMBRANE-CONTROLLED TRANSDERMAL DRUG DELIVERY OF TOLTERODINE TARTARATE

LAKSHMI. P.K., PAWANA. S., APARANJITHA RAJPUR, PRASANTHI. D.

111-115

VIEW ABSTRACT PDF DOWNLOAD PDF

PHARMACEUTICAL INTERACTION BETWEEN CYTOSTATIC DRUGS AND NACL 0,9% AND DEXTROSE 5% INFUSION

JUNAIDI KHOTIB, DEWI WARA SHINTA, SURJIANI KARSONO, BETTY ZUBAIDA, SAMIRAH, TOETIK ARYANI, MUHAMMAD ARIF KURNIAWAN, BUDI SUPRAPTI

116-119

VIEW ABSTRACT PDF DOWNLOAD PDF

LAXATIVE ACTIVITY OF RAPHANUS SATIVUS L. LEAF

PAYAL DANDE, ABHISHEK VAIDYA, PRATIKSHA ARORA

120-124

VIEW ABSTRACT PDF DOWNLOAD PDF

FINGER PRINTING ANALYSIS OF THE ALKALOIDS FROM SPHAERANTHUS AMARANTHOIDES LEAVES USING HPTLC ANALYSIS

SWARNALATHA Y, LAKSHMI KOMMINENI

125-127

VIEW ABSTRACT PDF DOWNLOAD PDF

STUDY OF THE ANTICONVULSANT ACTIVITY OF ETHANOLIC EXTRACT OF SEEDS OF BENINCASA HISPIDA LINN. IN ALBINO RATS.

KALPANA GOHAIN, SHIPRA KAUSHIK

128-130

VIEW ABSTRACT PDF DOWNLOAD PDF

VALIDATION METHOD FOR MEASURING SIMVASTATIN IN HUMAN PLASMA BY HPLC-UV AND ITS APPLICATION IN STUDY SIMVASTATIN STABILITY IN PLASMA AND WORKING SOLUTION

KHALED. M. ALAKHALI

EVALUATION OF ANTIDIARRHOEAL ACTIVITY OF ETHANOLIC EXTRACT OF CELTIS TIMORENSIS LEAVES IN EXPERIMENTAL RATS

PRASANTH KUMAR. M, SUBA. V, RAMIREDDY. B, SRINIVAS BABU.P

185-188

VIEW ABSTRACT PDF DOWNLOAD PDF

ISOLATION AND CHARACTERIZATION OF OLEANOLIC ACID FROM ROOTS OF LANTANA CAMARA

NARENDRA VYAS, AMEETA ARGAL

189-191

VIEW ABSTRACT PDF DOWNLOAD PDF

EFFECT OF DIFFERENT DOSES OF GREEN TEA ON OXIDATIVE STRESS AND MUSCLE SORENESS IN DOWNHILL TREADMILL RUNNING

M.R.MORADPOURIAN, Z.ASHKAVAND, C.VENKATESH, B.S.VISHWANATH

192-193

VIEW ABSTRACT PDF DOWNLOAD PDF

SUPPLEMENT USE AND GASTROINTESTINAL BLEEDING

SIMON B. ZEICHNER, MILENA CAVALCANTE, JAMIE A.BARKIN

194-201

VIEW ABSTRACT PDF DOWNLOAD PDF

PHYTOCHEMICAL ANALYSIS, ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF SYZYGIUM CARYOPHYLLATUM ESSENTIAL OIL

AMRITA SONI, PRAVEEN DAHIYA

202-205

VIEW ABSTRACT PDF DOWNLOAD PDF

NON INAVSIVE BIOSENSOR FOR DIABETES MONITORING

LOKENDRA YADAV

206-211

VIEW ABSTRACT PDF DOWNLOAD PDF

ANTIHYPERLIPIDEMIC EFFECT OF ASPARAGUS GONOCLADOS BAKER AGAINST CHOLESTEROL DIET INDUCED HYPERLIPIDAEMIA IN RATS.

NALLAM JAHNAVI, PRASAD. P. NAIDU, KOTESWARA RAO. A, KARUNASREE. C. P

212-215

VIEW ABSTRACT PDF DOWNLOAD PDF

SCREENING OF POTENTIAL PROBIOTIC LACTOBACILLUS STRAINS ISOLATED FROM FERMENTED FOODS, FRUITS AND OF HUMAN ORIGIN

HEMAL SADRANI, JAYANTILAL DAVE, BHARATKUMAR RAJIV MANUEL VYAS

216-225

VIEW ABSTRACT PDF DOWNLOAD PDF

Online ISSN: 2455-3891

Print ISSN: 0974-2441

ICV 2021: 100.00

doi Crossref Content Registration

Embase®

It's Embase, Not Expanded Embase, Learn in 1 Min

Peer Review

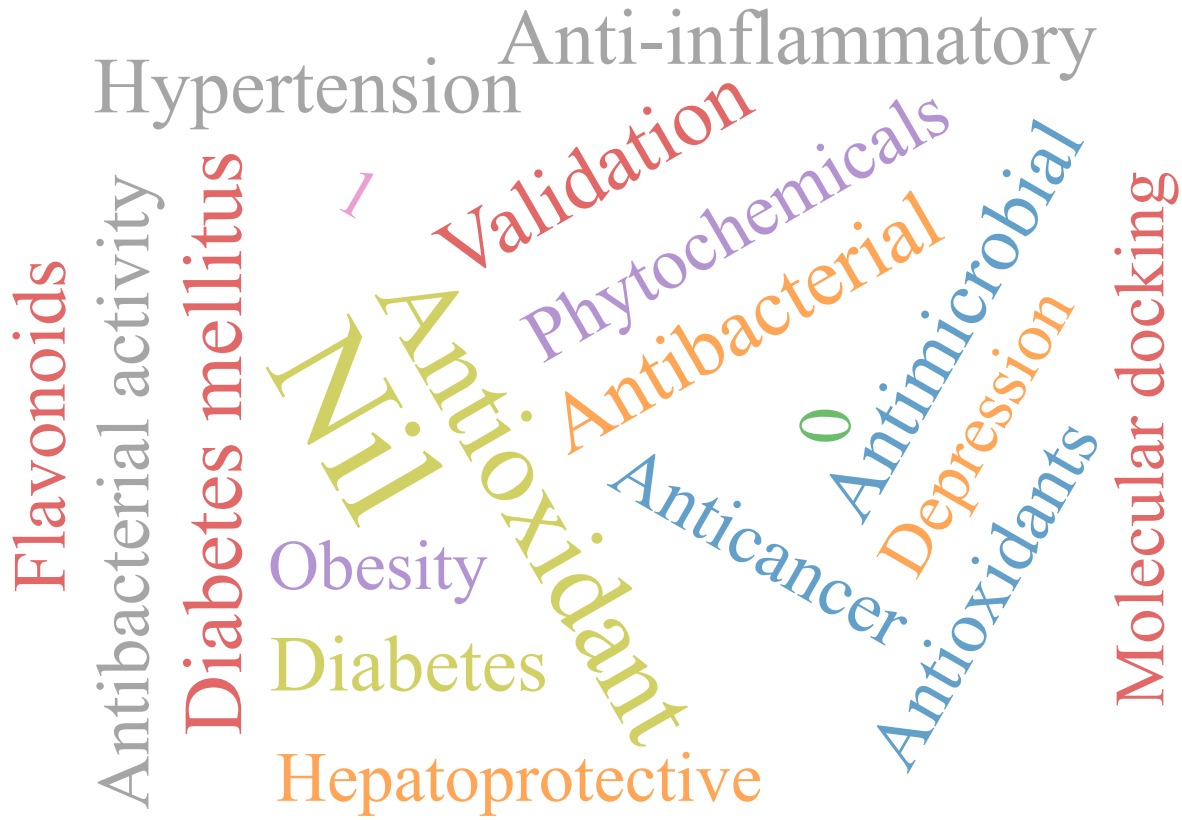
publons Reviewer Connect

Plagiarism Check

grammarly

Embase

KEYWORDS



Our Journals || **Open Access Policy** || **Publication & Peer Review Policy** || **Publication Ethics**
The publication is licensed under a **Creative Commons License** (CC BY). **View Legal Code**
Copyright © 2023 All Rights Reserved, **Innovare Academic Sciences** | Powered By **CyberDairy**

Asian Journal of Pharmaceutical and Clinical Research
E-ISSN: 2455-3891
P-ISSN: 0974-2441
EMBASE

Editorial Board

Editorial Board

AJPCR is committed to have dynamic and potential advisory-editorial board. Those established in the field can directly send their resume. New people are first needed to serve as referee before being considered member of advisory-editorial board. Email your resume to editor@ajpcr.com

Editor-in-Chief

- **Dr. Anurekha Jain**
  Principal, Technocrats Institute of Technology and sciences-pharmacy, Bhopal
  Email: anurekhajain1@gmail.com, editor@ajpcr.com

Associate Editor

- **Dr. Nuray Arı**
  Department of Pharmacology, Faculty of Pharmacy, Ankara University, 06100 Ankara, Turkey.
  Email: ari@ankara.edu.tr
- **Dr. Idress Hamad Attitalla**
  Department of Microbiology (Head) Faculty of Medical Technology (Dean) Box 919, Al-Bayda, Libya. Email: idress.hamad@omu.edu.ly

Assistant Editor

- **Dr. Omotoso Abayomi Ebenezer**
  Department of Pharmaceutical & Medicinal Chemistry. Faculty of Pharmaceutical Sciences, University of Port Harcourt, Nigeria.
- **Dr. Vimal Kumar Jain**
  Principal, ITM School of Pharmacy, ITM Universe, Vadodara & Associate Dean, Pharmacy, GTU, Ahmedabad, India
- **Dr. Adrianna Mostowska**
  Department of Biochemistry and Molecular Biology Poznan University of Medical Sciences Poznan, Poland.

Editorial Board Members

- **Dr. Shivayogappa Teli**
  Professor and Head, Department of Physiology Sri Manakula Vinayagar Medical College and Hospital Madagadipet, Puducherry 605107, India
- **Dr. Rupesh Kumar Gautam**
  Associate Prof., ADINA Institute of Pharmaceutical Sciences, Sagar, MP, India

- **Dr. Tushar Treembak Shelke**
  Head of Department of Pharmacology and Research Scholar, In Jspms Charak College of Pharmacy & Research, Pune, India

- **Dr. Subas Chandra Dinda**
  Professor-cum-Director: School of Pharmaceutical Education & Research (SPER), Berhampur University, Berhampur, Orissa, India

- **Dr. Jagdale Swati Changdeo**
  Professor and Head, Department of Pharmaceutics, MAEER's Maharashtra Institute of Pharmacy, S.No.124, MIT Campus, Kothrud, Pune, India

- **Dr. Biplab Kumar Dey**
  Principal, Department of Pharmacy, Assam down town University, Sankar Madhab Path, Panikhaiti 781026, Guwahati, Assam, India
- **Dr. Durgesh Ranjan**
  Pharmacy Global College of Pharmaceutical Technology Palpara, Krishnagar, Nadia West Bengal, India

Editorial office

Asian Journal of Pharmaceutical and Clinical Research
B-11, In front of Bima Hospital, Nai Abadi, Mandsaur 458001, MP, India
E-mail:editor@ajpcr.com

Online ISSN: 2455-3891

Print ISSN: 0974-2441

ICV 2021: 100.00

Crossref Content Registration

Embase®

It's Embase, Not Expanded Embase, Learn in 1 Min

Peer Review

publons
Reviewer Connect

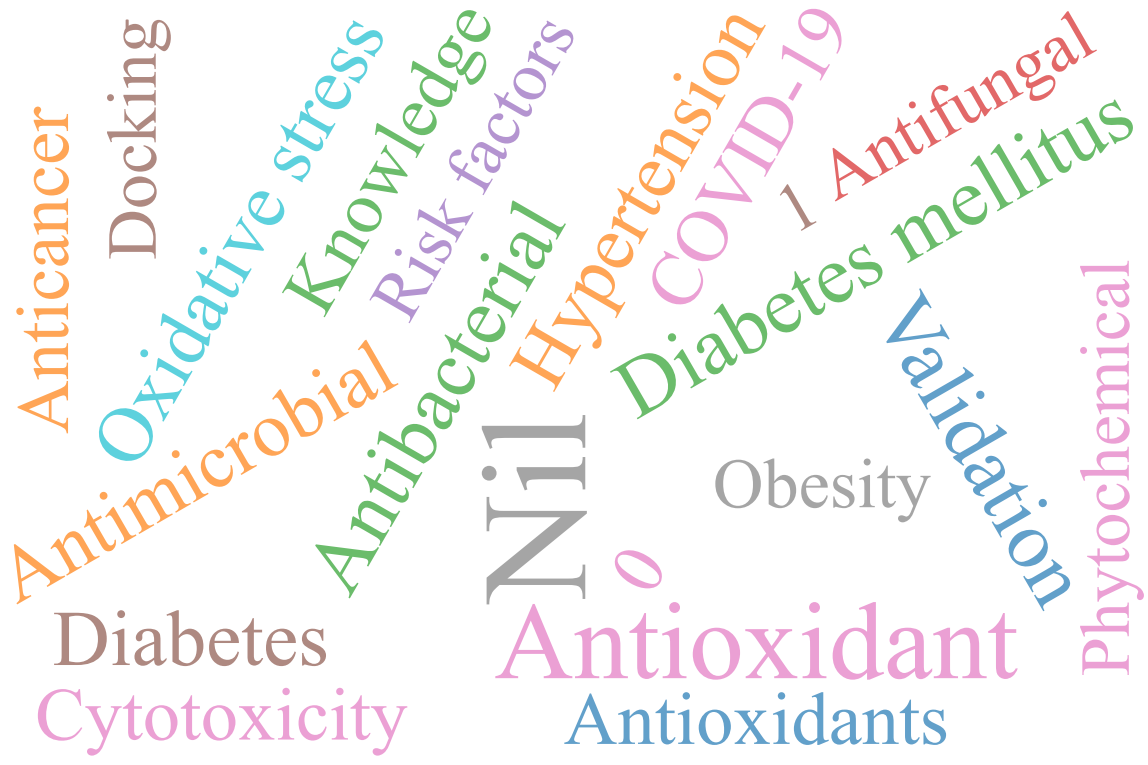
Plagiarism Check

grammarly

Embase

Open Journal Systems

KEYWORDS



Our Journals || Open Access Policy || Publication & Peer Review Policy || Publication Ethics

The publication is licensed under a **Creative Commons License** (CC BY). **View Legal Code**

Copyright © 2023 All Rights Reserved, **Innovare Academic Sciences** | Powered By **CyberDairy**

ASIAN JOURNAL OF PHARMACEUTICAL AND CLINICAL RESEARCH

INNOVARE ACADEMIC SCIENCES
Knowledge to Innovation

Vol 7, Suppl 2, 2014

ISSN - 0974-2441

Research Article

PHARMACEUTICAL INTERACTION BETWEEN CYTOSTATIC DRUGS AND NACL 0,9% AND DEXTROSE 5% INFUSION

JUNAIDI KHOTIB*, DEWI WARA SHINTA*, SURJIANI KARSONO, BETTY ZUBAIDA**, SAMIRAH*, TOETIK ARYANI*, MUHAMMAD ARIF KURNIAWAN*, BUDI SUPRAPTI***

Clinical Pharmacy Department, Faculty of Pharmacy, Airlangga University, Dharmawangsa Dalam, Surabaya, Indonesia, 60286.

Email: junaidi-k@ff.unair.ac.id, de.shinta@yahoo.com

Received: 24 February 2014, Revised and Accepted: 31 March 2014

ABSTRACT

Objective. Pharmaceutical interaction between cytostatic drugs and its infusion fluids and packaging materials may cause therapy failure and reduce its cytostatic potential. Therefore, several tests on pharmaceutical interaction between several cytostatic drugs which are most commonly used in clinics and its infusion fluids need to be done.

Methods. Some cytostatic drugs (such as cyslophosphamide, 5-fluorouracyl, cisplatin, and paclitaxel) are dissolved in certain concentration of NaCl 0.9% or Dextrose 5% infusion solution. Then, the solutions are incubated at room temperature and protected from sunlight. On the 0th hour (initial condition), 2nd, 4th, 8th, 12th, and 24th hour visual observations, pH measurement, and content measurement are performed.

Results. Based on visual observations, it is indicated that there is no change in color, clarity, and particles of all solutions. At pH measurement, obtained changes in pH of cytostatic solution, which is still within the tolerable range of injection preparation (pH 4-10) and on active compounds stability range. Meanwhile, based on change of cytostatic concentration in each solution, it is indicated that there is no significant difference after 24-hour observation.

Conclusion. Cytostatic drugs dissolved in NaCl 0.9% or Dextrose 5% infusion remained stable in terms of clarity, pH, and concentration level.

Keywords: cyclophosphamide, 5-fluorouracyl, cisplatin, paclitaxel, pharmaceutical interaction.

INTRODUCTION

Interaction between drug compounds and its solvent and packaging materials is an important issue that needs to be solved well by pharmaceutical industries in order to produce a stable, effective, and safe product. Pharmaceutical interaction may occur between drugs active compounds and its packaging materials (1–6). Pharmaceutical interaction may also occur between active compounds and its solvent or other active compounds which are mixed before drug usage (7–10). The interaction may affect drug preparations usage in clinics or hospitals by reducing the stability of preparation or mixture, reducing solubility and contents of the drugs, and possibly resulting toxicity or unpredicted activities.

Cytostatic drugs are given on toxic dosage to growing cells; therefore any change on concentration may affect the patient. Practically, cytostatic drugs should be dissolved into infusion fluids such as NaCl 0.9% or Dextrose 5% (D5%) to obtain particular concentration. While being formulated as a solution, some drugs are very vulnerable to chemical decomposition. This may occur mainly on mixing and infusion preparation stages. Interaction between drugs and its infusion fluids and its packaging materials made from glass or plastic material such as PVC and polyethilene may occur likewise (11). In addition, the uses of continuous infusion technology will extent the contact time between active solution and its packaging materials which mostly made from polymer materials (plastic). Thus, physico-chemical interaction and incompatibility may occur before or during intravenous infusion (12,13). Incompatibility reduces the potential of the drugs and lowers its dosage into sub-therapeutic level. Besides, incompatibility also causes intolerance and toxicity, such as emboli, pH change, and irritation on injected area (14,15). Hence, it is important to determine reconstituted anti-cancer agent stability, especially during infusion.

Considering the importance of infusion fluids, especially NaCl 0.9% and D5% and its packaging materials which is commonly used in cytostatic injection for certain period, a research on cytostatic drugs preparation stability needs to be conducted.

MATERIALS AND METHODS

Materials

D5% and NaCl 0,9% (PT Widatra Bhakti), Cyclophosphamide Powder for Injection 1000 mg/vial (PT. Kalbe Farma), 5-Fluorouracyl Ebewe 500 mg/10 ml vial (PT. Ferron/Ebewe), Cisplatin 50 mg/50 ml vial (Platosin PT. Combiphar/Pharmacemie), Paclitaxel 30 mg/5 ml vial (Paxus PT. Kalbe Farma), Water for Irrigation USP (PT. Otsuka), Methanol HPLC Grade, Acetonitrile HPLC Grade, Kalium dihydrogen phosphate Analytical Grade (Riedel deHaen), Natrium dihydroxide Analitycal Grade (Merck).

Preparation

All cytostatic solutions are prepared inside *laminar air flow.* Dosage of each cytostatic substance used in this research are: cyclophosphamide (500 and 4000 ppm), 5-fluorouracyl (1000 and 4000 ppm), cisplatin (100 and 400 ppm), and paclitaxel (120 and 300 ppm). All of these substances are dissolved into appropriate solvents namely 100 ml NaCl 0.9% and D5% inside its package. Then all concentrations are duplicated and stored in room temperature and protected from sunlight. Then the samples of all cytostatic infusion solutions are taken on 0th, 2nd, 4th, 8th, 12th, and 24th hour for visual observation, pH measurement, and concentration measurement.

Visual Observation

Visual observation is performed under laboratory standard lighting. Each solution will be observed its color change, clarity, and particle existence.

pH Measurement

pH of all solutions are measured by using *Crison pH meter* (Crison instruments, S. A., Barcelona) which have been calibrated on standard buffers pH 4.0, 7.0, and 9.21.

Concentration Measurement

The concentrations of each cytostatic infusion solution are measured by using HPLC Agilent 1100 series. The condition of HPLC used in this research is described on Table 1.

Statistical Analysis

Significant difference between groups of each parameter measured in this research are done using One-way ANOVA stastitical analysis (SPSS 20).

RESULTS AND DISCUSSION

Interaction between drug compounds and its carrier solution or its packaging materials is an important issue in assuring stability, effectiveness, and safety of drug compound during preparation. Interaction between drug compounds and its carrier or packaging material causes decomposition of drug compounds which resulting in degradant compounds, visual and physico-chemical changes, and may harm the patients (16). This research has observed pharmaceutical interactions of several cytostatic drugs and infusion solutions produced by local pharmaceutical industries.

The issue regarding interaction between active compounds and its carrier solution and packaging materials often occurs on injection preparation. During preparation process, injection preparation should be dissolved in infusion solution (such as D5% or NaCl 0.9%) in order to obtain particular concentration before being injected intravenously. Some drug compounds such as cytostatic drugs are very vulnerable to chemical decomposition during solution/injection formulation, especially during mixing stage of infusion preparation. These drugs are dripped intravenously for a certain period so that interactions between drug compounds and its infusion solution or its package material, such as glass and PVC (plastic) are likely to occur. Furthermore, the use of continuous infusion technology extents contact time between active compounds and infusion packages which are commonly made from polymer (plastic) material. Thus, physico-chemical interaction and incompatibility may occur before and during intravenous injection. Considering the vast use of the technology on hospitals and physico-chemical characteristic variability of drug compounds, it potentially causes serious problems on therapy (17). Therefore, this research is conducted to observe the interaction between cytostatic preparations, such as cyclophosphamide, 5-fluorouracyl, cisplatin, and paclitaxel which are commonly injected through intravenous drips with infusion solutions Dextrose 5% and NaCl 0,9% produced by PT. Widatra Bhakti.

Interaction occurred between cytostatic drugs and its carrier or package can be observed through several evaluations. They are: visual evaluation, physico-chemical evaluation, and chemical evaluation. Visual parameter is used to observe sedimentation formed in the solution, turbidity and color changes of the cytostatic solutions which have been stored for 24 hours. Physico-chemical parameter is used to observe pH stability of the solutions when being stored for 24 hours and to assure that the pH of cytostatic solution does not exceed injection preparation range (pH 4 – 10) while chemical parameter is used to observe cytostatic solution decomposition and degradation by quantifying its drug compound contents using HPLC instrument.

Visual Observation

All of cytostatic infusion solutions dissolved in NaCl 0.9% or D5% infusions have passed visual observation in every observation period based on color parameter, clarity, and inexistence of particles. This result is not different from comparator.

Table 1: HPLC condition in the measurement of cytostatic concentration in infusion

	Cyclophosphamide 500 and 4000 ppm	5-Fluorouracil 1000 and 4000 ppm	Cisplatin 100 and 400 ppm	Paclitaxel 120 and 300 ppm
Detector	UV 195 nm	UV 204 nm	UV 204 nm	UV 226 nm
Coloumn	C18 (250 mm x 4.6 mm, 5µm), packing L1	C18 (250 mm x 4.6 mm, 5µm), packing L1	CN (150 mm x 4,6mm, 5µm), packing L10	C18 (250 mm x 4.6 mm, 5µm), packing L1
Flow rate	1 mL/min	1 mL/min	0,3 mL/min	1 mL/min
Mobile phase	Acetonitrile and water (3:7)	Methanol : Kalium dihydrogen phosphate 0.01 mol/L (5:95)	0,005 M phosphat buffer pH 6.5	Acetonitrile and phosphate buffer pH 7,4 (60:40)
Coloum temperature	30 °C	30 °C	30 °C	30 °C
Volume injection	50 µL	1 µl	5 µl	10 µl

pH Measurement

Before the addition of cytostatic, NaCl 0.9% or D5% PT Widatra Bhakti have indicated different pH (5.13 or 5.84 respectively). pH of each cytostatic infusion during 24-hour observation period is described in Table 2, Table 3, Table 4, and Table 5. Cyclophosphamide 500 ppm infusion inside D5% or NaCl 0.9% has been decreased by 0.67 units and 0.81 units respectively. Different result shown by high-concentration cyclophosphamide (4000 ppm) in which the pH decrease sharply by 1.18 units and 1.2 units respectively on NaCl 0.9% and D5%. Meanwhile, the pH of 5-fluorouracyl 1000 ppm infusion shows a slight decrease by 0.27 units (on NaCl 0.9%) and 0.24 units (on D5%). This result is similar to the pH of high-concentration 5-fluorouracyl (4000 ppm).

An anomaly is shown on cisplatin infusion 100 ppm and 400 ppm which are dissolved in NaCl 0.9%. pH of these infusions seem to be increased when compared to initial pH. However, this increase is only as much as 0.13 and 0.15 units. Meanwhile, the pH of paclitaxel 120 ppm and 300 ppm which are dissolved in NaCl 0.9% and D5% shows a minor change. The pH of all cytostatic infusions which are dissolved in NaCl 0.9% or D5% are on tolerable range of infusion solution pH ($4 \leq pH \leq 10$), except for cyclophosphamide 4000 ppm after 4-hour observation. This result is also shown on cyclophosphamide 4000 ppm which have been dissolved in the comparator infusion.

Concentration Measurement

Chemical stability data of cyclophosphamide, 5-fluorouracyl, cisplatin, and paclitaxel in NaCl 0.9% and D5% infusions for all observation periods are presented in Table 2. An infusion is categorized as "stable" when the variation (concentration deviation) does not exceed ± 5% of initial concentration. The initial concentration (concentration at the 0^{th} hour) is considered 100%.

Cyclophosphamide 500 ppm infusions remained stable for 24 hours either for NaCl 0.9% or D5% solutions. Similarly, cyclophosphamide 4000 ppm which has been dissolved in the two solvents remained stable for 24 hours with the lowest content as much as 96.34%. The similar result was also found on 5-fluorouracyl 1000 ppm which has been dissolved in NaCl 0.9% and D5%. The solutions remained stable for 24 hours. Concentration variations of 5-fluorouracyl 1000 ppm in NaCl 0.9% and D5% are 97.50% - 100.04% and 99.72% - 100.86% respectively. Meanwhile, content variations of 5-

fluorouracyl 4000 ppm in NaCl 0.9% and D5% are 98.35% - 100.72% and 99.05% - 100.92%. Cisplatin 100 ppm which dissolved in NaCl 0.9% remains stable for 24 hours with content variation ranged between 99.80% - 102.30%. Meanwhile, cisplatin 400 ppm in NaCl 0.9% remains stable for 12 hours. At the 24th hour, the content was decreased by over than 5% (92.23%). The result of paclitaxel 120 ppm and 300 ppm which have been dissolved in the two infusion solutions indicated stability for 24 hours, except for paclitaxel 120 ppm in NaCl 0.9% at the 8th hour observation which indicated content decreasing over than 5% (94.42 %).

Table 2: Physical and Chemical Stability of Cyclophosphamide infusion in NaCl 0.9% and D5% of PT. Widatra Bhakti over 24 hours

Time (hours)	pH ± SD		Visual appearence	% concentration ± SD Cytostatics remaining	
	NaCl 0.9%	D5%		NaCl 0.9%	D5%
Cyclophosphamide 500 ppm					
0	5.40±0.11	5.11±0.15	Pass	500.2 ± 10.4	500.2 ± 8.2
2	5.35±0.16	4.95±0.03	Pass	98.8	100.54
4	5.27±0.11	4.83±0.02	Pass	98.14	96.63
6	5.16±0.08	4.78±0.00	Pass	96.34	99.02
8	5.10±0.11	4.74±0.04	Pass	97.94	99.22
12	4.96±0.09	4.65±0.05	Pass	96.76	100.1
24	4.59±0.02	4.44±001	Pass	100.74	102.96
Cyclophosphamide 4000 ppm					
0	4.54 ± 001	4.51±0.02	Pass	4000.0 ± 15,9	4000.0 ± 37.9
2	4.26 ± 0.01	4.24±0.04	Pass	99.40	98.63
4	4.00 ± 0.01	3.98±0.03	Pass	99.75	99.87
6	3.84 ± 0.01	3.82±0.01	Pass	100.16	98.90
8	3.71 ± 0.00	3.69±0.01	Pass	99.50	98.95
12	3.45 ± 0.17	3.54±0.04	Pass	99.05	98.45
24	3.36 ± 0.01	3.31±0.01	Pass	98.66	96.70

Table 3: Physical and Chemical Stability of 5-FU infusion in NaCl 0.9% and D5% of PT. Widatra Bhakti over 24 hours

Time (hours)	pH ± SD		Visual appearence	% concentration ± SD Cytostatics remaining	
	NaCl 0.9%	D5%		NaCl 0.9%	D5%
5-Fluorouracyl 1000 ppm					
0	8.78 ± 0.02	8.87 ± 0.01	Pass	1000.0 ± 6.6	1000.0 ± 10.5
2	8.79 ± 0.01	8.81 ± 0.02	Pass	99.76	101.82
4	8.81 ± 0.08	8.83 ± 0.02	Pass	99.15	100.54
6	8.72 ± 0.01	8.74 ± 0.04	Pass	99.69	99.98
8	8.69 ± 0.00	8.73 ± 0.00	Pass	100.04	100.86
12	8.65 ± 0.00	8.71 ± 0.01	Pass	97.50	100.81
24	8.51 ± 0.01	8.63 ± 0.00	Pass	99.96	99.72
5-Fluorouracyl 4000 ppm					
0	8.80 ± 0.04	8.89 ± 0.04	Pass	4000.0 ± 38.8	4000.0 ± 7.9
2	8.80 ± 0.01	8.87 ± 0.01	Pass	98.35	100.08
4	8.82 ± 0.01	8.86 ± 0.01	Pass	99.72	100.04
6	8.78 ± 0.00	8.87 ± 0.00	Pass	99.57	99.05
8	8.78 ± 0.01	8.86 ± 0.04	Pass	99.76	99.95
12	8.78 ± 0.01	8.89 ± 0.03	Pass	99.83	100.07
24	8.72 ± 0.01	8.65 ± 0.00	Pass	100.72	100.92

Table 4: Physical and Chemical Stability of Cisplatin infusion in NaCl 0.9% of PT. Widatra Bhakti over 24 hours

Time (hours)	pH ± SD		Visual appearence	% concentration ± SD Cytostatics remaining	
	NaCl 0.9%	D5%		NaCl 0.9%	D5%
Cisplatin 100 ppm					
0	5.67 ± 0.01	-	Pass	100.0 ± 0.8	-
2	5.77 ± 0.01	-	Pass	100.7	-
4	5.69 ± 0.08	-	Pass	101.1	-
6	5.77 ± 0.04	-	Pass	102.6	-
8	5.75 ± 0.01	-	Pass	99.8	-
12	5.72 ± 0.04	-	Pass	100.0	-
24	5.81 ± 0.04	-	Pass	102.3	-
Cisplatin 400 ppm					
0	4.36 ± 0.01	-	Pass	400.0 ± 1.1	-
2	4.34 ± 0.01	-	Pass	100.42	-
4	4.40 ± 0.01	-	Pass	100.4	-
6	4.38 ± 0.01	-	Pass	99.08	-
8	4.43 ± 0.01	-	Pass	100.03	-
12	4.47 ± 0.01	-	Pass	100.48	-
24	4.51 ± 0.01	-	Pass	92.23	-

Table 5: Physical and Chemical Stability of Paclitaxel infusion in NaCl 0.9% and D5% of PT. Widatra Bhakti over 24 hours

Time (hours)	pH ± SD		Visual appearence	% concentration ± SD Cytostatics remaining	
	NaCl 0.9%	D5%		NaCl 0.9%	D5%
Paclitaxel 120 ppm					
0	4.95 ± 0.01	4.97 ± 0.02	Pass	120.0 ± 0,2	120.0 ± 7,4
2	4.95 ± 0.00	4.98 ± 0.02	Pass	99.67	103.25
4	5.09 ± 0.01	5.06 ± 0.01	Pass	95.25	102.75
6	4.90 ± 0.03	5.12 ± 0.04	Pass	102.08	98.92
8	4.98 ± 0.04	5.04 ± 0.01	Pass	94.42	100.08
12	5.06 ± 0.01	5.04 ± 0.01	Pass	97.25	99.25
24	5.05 ± 0.01	5.12 ± 0.00	Pass	96.25	99.83
Paclitaxel 300 ppm					
0	4.74 ± 0.02	4.58 ± 0.01	Pass	300.0 ± 17,9	300.0 ± 4,0
2	4.73 ± 0.01	4.56 ± 0.01	Pass	103.27	99.87
4	4.70 ± 0.01	4.56 ± 0.01	Pass	104.60	95.87
6	4.67 ± 0.01	4.58 ± 0.01	Pass	99.87	99.93
8	4.65 ± 0.01	4.56 ± 0.00	Pass	103.40	98.10
12	4.69 ± 0.01	4.56 ± 0.01	Pass	103.03	98.70
24	4.69 ± 0.00	4.55 ± 0.01	Pass	101.87	102.00

Based on these results, it is indicated that there is no cytostatic solution which shows concentration decrease more than 5%, except for cisplatin 400 ppm and paclitaxel 120 ppm which have been dissolved into NaCl 0.9% at the 24th hour observation and the 8th hour observation respectively. Compared to comparator, paclitaxel 120 ppm which has been dissolved into NaCl 0.9% also indicated more than 5% decreased concetration (93.60 %) at 8th hour observation. These findings indicated that all cytostatic solution dissolved into NaCl 0.9% and D5% infusion solutions produced by PT. Widatra Bhakti remained stable.

CONCLUSION

Stability research on cytostatic drugs which are dissolved into D5% or NaCl 0.9% infusions produced by PT Widatra Bhakti indicates no visual change (color, clarity, and sedimentation). Besides that, the pH and cytostatic concentration after dissolve into infusion solution also indicates insignificant changes compared to initial condition. Therefore, the data suggest that the infusions can maintain the stability of cytostatic compounds which are dissolved into it.

ACKNOWLEDGMENT

This work was supported by PT Widatra Bhakti.

REFERENCES

1. Beitz C, Bertsch T, Hannak D, Schrammel W, Einberger C, Wehling M. Compatibility of plastics with cytotoxic drug solutions-comparison of polyethylene with other container materials. Int J Pharm. 1999;185(1):113–21.
2. Mazzo DJ, Nguyen-Huu J-J, Pagniez S, Denis P. Compatibility of docetaxel and paclitaxel in intravenous solutions with polyvinyl chloride infusion materials. Am J Heal Syst Pharm. 1997;54:566–9.
3. Donyai P, Sewell GJ. Physical and chemical stability of paclitaxel infusions in different container types. J Oncol Pharm Pract. 2006;12(4):211–22.
4. Illum L, Bundgaard H. Sorption of drugs by plastic infusion bags. Int J Pharm. 1982;10(4):339–51.
5. Sewell G. Physical and chemical stability of cisplatin infusions in PVC containers. Eur J Oncol. 2010;4(06):11–3.
6. Martel P, Petit I, Pinguet F, Poujol S, Astre C, Fabbro M. Long-term stability of 5-fluorouracil stored in PVC bags and in ambulatory pump reservoirs. J Pharm Biomed Anal. 1996;14(4):395–9.
7. Pinguet F, Martel P, Rouanet P. Effect of sodium chloride concentration and temperature on melphalan stability during storage and use. Am J Hosp Pharm. 1994;51(21):2701–4.
8. Pascal A, Salvatore C, Roy A-L. Stability of oxaliplatin in infusion bags containing 5% dextrose injection. Am J Heal Syst Pharm. 2007;64:1950–4.
9. Stewart CF, Fleming RA. Compatibility of cisplatin and fluorouracil in 0.9% sodium chloride injection. Am J Hosp Pharm. 1990;47(6):1373–7.
10. Konda N, Prashanth P, Arvind G, Shah S. Pharmaceutical Development and Compatibility Studies on Cytarabine Injection. Asian J Pharm Clin Res. 2013;6(3):4–7.
11. Vincke BJ, Verstraeten AE, El Eini DID, McCarthy TM. Extended stability of 5-fluorouracil and methotrexate solutions in PVC-containers. Int J Pharm. 1989;54:181–9.
12. Chantelau E, Lange G, Gasthaus M, Boxberger M, Berger M. Interaction between plastic catheter tubings and regular insulin preparations used for continuous subcutaneous insulin-infusion therapy. Diabetes Care. 1987;10(3):348–51.
13. Quebbeman EJ, Hamid AAR, Hoffman NE, Ausman RK. Stability of fluorouracil in plastic containers used for continuous infusion at home. Am J Hosp Pharm. 1984;41:1153–6.
14. Rahmawati F, Hidayati N, Rochmah W, Sulaiman SAS. Potentiality of Drug-drug Interactions in Hospitalized Geriatric Patients in a Private Hospital, Yogyakarta, Indonesia. Asian J Pharm Clin Res. 2010;3(3):191–4.
15. Benvenuto JA, Adams SC, Vyas HM, Anderson RW. Pharmaceutical Issues in Infusion Chemotherapy Stability and Compatibility. In: Lokich JJ, editor. Cancer Chemotherapy by Infusion. Chicago: Springer Netherlands; 1987. p. 100–13.
16. Beijnen JH, Schellens JHM. Review Drug interactions in oncology. Lancet Oncol. 2004;5(August):489–96.
17. Astier A. The stability of anticancer drugs. Eur J Hosp Pharm Pract. 2007;13(2):91–2.

View publication stats

Asian Journal of Pharmaceutical and Clinical Research

Discontinued in Scopus as of 2018

COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
India Universities and research institutions in India Media Ranking in India	Medicine Pharmacology (medical) Pharmacology, Toxicology and Pharmaceutics Pharmaceutical Science Pharmacology	Asian Journal of Pharmaceutical and Clinical Research	41

PUBLICATION TYPE	ISSN	COVERAGE
Journals	09742441, 24553891	2009-2018, 2020-2021

SCOPE

Information not localized

Join the conversation about this journal

Quartiles

FIND SIMILAR JOURNALS

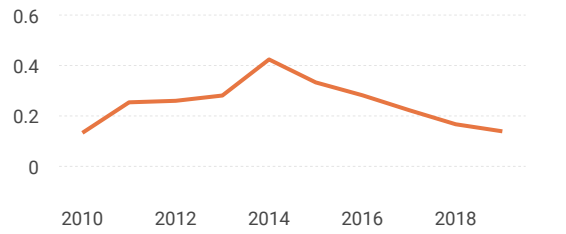
1
International Journal of Applied Pharmaceutics
IND
56%
similarity

2
International Journal of Green Pharmacy
IND
35%
similarity

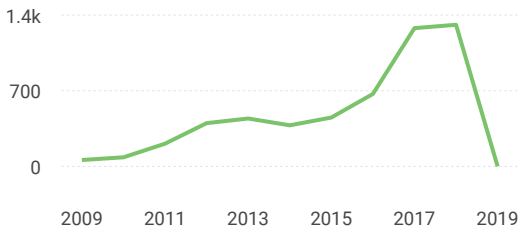
3
Indian Drugs
IND
30%
similarity

4
Pharmacolo
ITA
2
s

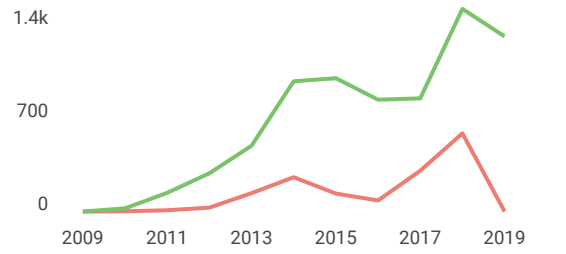
SJR



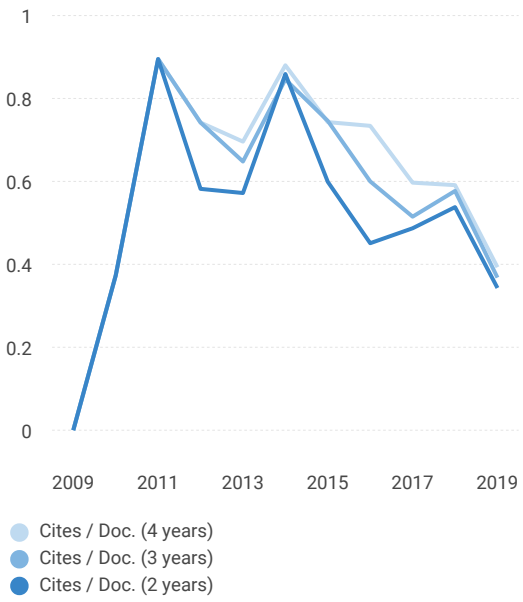
Total Documents



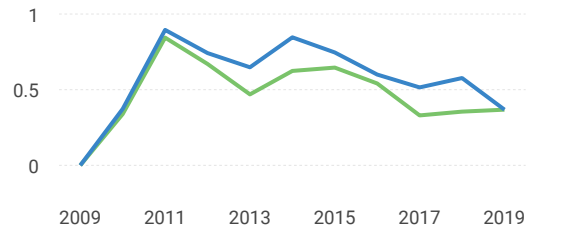
Total Cites Self-Cites



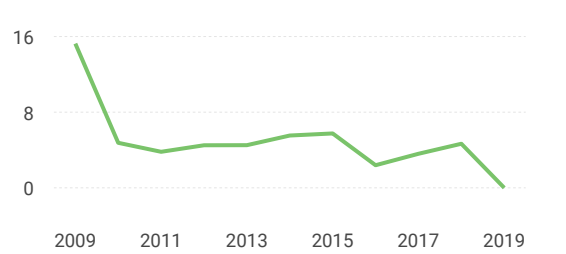
Citations per document



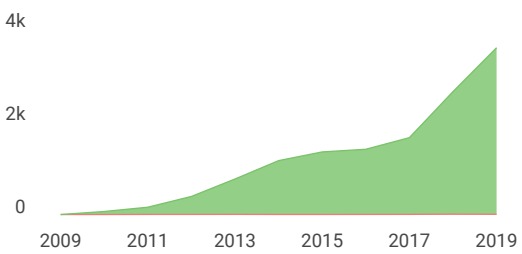
External Cites per Doc Cites per Doc



% International Collaboration



Citable documents Non-citable documents

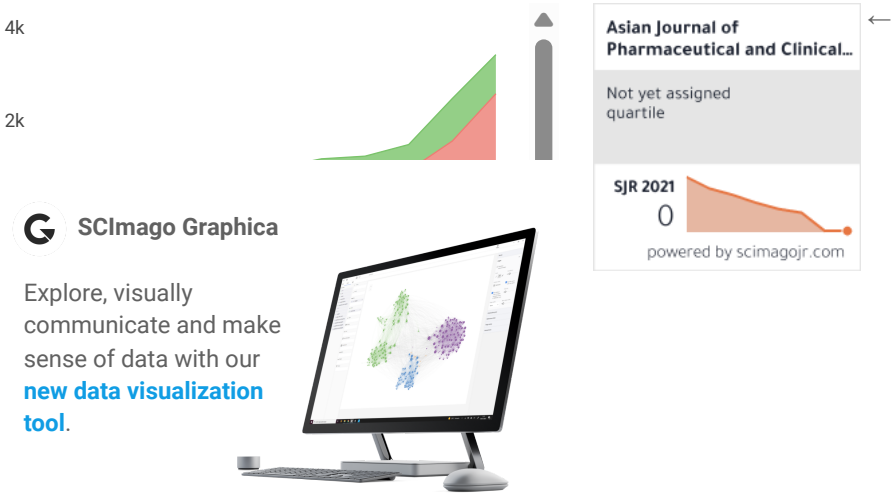


Cited documents Uncited documents

Show this widget in your own website

Just copy the code below and paste within your html code:

<a href="https://www.scimag



Metrics based on Scopus® data as of April 2022

B **Bimala Subba** 2 years ago

Dear Elena Corera
Please help me to publish this comment. It will save the future of many innocent researchers like me. This journal Asian Journal of Pharmaceutical and Clinical Research is published by a predatory publishershttps://predatoryjournals.com/publishers/, We are unble to use any publication published by Innovare Academic Sciences as it is listed in the predatory list. I have been suffering a lot, as though this is a good journal with the SCImigo impact factor.
I have humble request SCImigo team, to remove this journal from your list.

Dr. Bimala Subba
Central Department of Chemistry, TU, Kirtipur, Nepal

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Dr. Bimala,
thank you for your comment.
Our data source is Scopus, SCImago doesn't participate in the journal's selection. SCImago has no authority to include or exclude SJR journals. We just show the data provided in the latest update by Scopus. Please contact Scopus Support regarding this matter here:
https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/
Best Regards, SCImago Team

N **Nivetha** 2 years ago

Does Asian Journal of Pharmaceutical and Clinical Research comes under UGC list.

reply

B **Bimala Subba** 2 years ago

This journal is listed in the predatory list as a predatory publisher. They do not have legal proof against this blame. Try to avoid publication with this kind of journal. your afford will be useless for your academic carrier.

SCImago Team

Melanie Ortiz 2 years ago

Dear Nivetha,
Thank you for contacting us.
Unfortunately, we cannot help you with your request.
Best Regards, SCImago Team

S **swati singh** 2 years ago

Sir,
Does the Asian Journal of Pharmaceutical and Clinical Research index in Scopus and Elsevier?

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Swati,
Thank you very much for your comment.
All the metadata have been provided by Scopus /Elsevier in their last update sent to SCImago, including the Coverage's period data. The SJR for 2020 has been released on 17 May 2021. We suggest you consult the Scopus database directly to see the current index status as SJR is a static image of Scopus, which is changing every day.
Best Regards, SCImago Team

T **Thamara Melo** 2 years ago

Dear Scimago Team,
Does the Asian Journal of Pharmaceutical and Clinical Research still coverage by Scopus and Elsevier 2020?

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Thamara,
Thank you very much for your comment.
All the metadata have been provided by Scopus /Elsevier in their last update sent to SCImago, including the Coverage's period data. The SJR for 2019 was released on 11

June 2020. We suggest you consult the Scopus database directly to see the current index status as SJR is a static image of Scopus, which is changing every day.
Best Regards, SCImago Team

S **Sagar** 3 years ago

Dear sir, every year SJR ranking is updated on june. There is no any update for AJPCR on June 2020. Will there be no update in future??

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Sagar,

Thank you for contacting us. The SJR for 2019 is available just above.

Best Regards, SCImago Team

G **GAF** 3 years ago

Dear journal Editor

Why can't I found my published paper on google scholar search? My paper is published on january 2020 volume 13.

Thanks

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear GAF,

thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you to contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

S **smitharaj.m** 3 years ago

plz let me knw the asian journal of pharmaceutical sciences and clinical research.....cums under ugc list

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Sir,
Sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you to visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

V **Vinendra** 3 years ago

What is the impact factor of AJPCR in 2018?
Please share

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Vinendra, SCImago Journal and Country Rank uses Scopus data, our impact indicator is the SJR. Check our web to locate the journal. We suggest you to consult the Journal Citation Report for other indicators (like Impact Factor) with a Web of Science data source. Best Regards, SCImago Team

R **Ratih** 3 years ago

Dear Scimago Team,
Does the Asian Journal of Pharmaceutical and Clinical Research still coverage by Scopus until 2019? Because I have opened the Scopus.com, it mentioned that this journal isn't coverage by scopus anymore. But in SCimago web, it mentions that the coverage is stil on going. What's that mean?

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Ratih, thank you very much for your comment. SJR has been updated on June 1, 2019. Each year Scopus provides us an update database and, according to that new information, indicators are calculated. Annual data updating can change journal's information. We're sorry for the inconvenience. Best Regards, SCImago Team

A **Abdullah Khan** 3 years ago

Dear sir, Asian Journal of Asian Journal of Pharmaceutical and Clinical Research is still indexed in SCOPUS or discontinued?

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Abdullah, thank you very much for your comment, unfortunately we cannot help you with your request. We suggest you to consult the Scopus database directly. Remember that the SJR is a static image of a database (Scopus) which is changing every day. Best regards, SCImago Team

A **Asmaa mohammed** 3 years ago

Dear Elena,
Till now, Asian Journal of Pharmaceutical and Clinical Research present in SJR (2009-ongoing)
However, This journal is canceled in scopus source list 2019
I need to konw that this journal is present or cancelled

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear user, thank you very much for your comment. SJR has been updated on June 1, 2019. Each year Scopus provides us an update database and, according to that new information, indicators are calculated. Unfortunately, we cannot provide data from previous years. We're sorry for the inconvenience. Best Regards, SCImago Team

Z **zaib** 4 years ago

Does Asian Journal of Pharmaceutical and Clinical Research is a fake journal?

reply

S **Sultan Alshahrani** 4 years ago

Does AJPCR have impact factor? Thanks

reply

M **Manoj Kumar Mudigubba** 4 years ago

Asian journal of pharmaceutical and clinical research is Elsevier indexed journal?

reply

SCImago Team

Elena Corera 4 years ago

Dear Manoj,

thank you for your request, all the journals included in SJR are indexed in Scopus. Elsevier

/ Scopus is our data provider.

Best Regards,
SCImago Team

A **Amn** 5 years ago

Dear Elena
Do you advice me to publish my paper in which journal:
Indian journal of pharmaceutical sciences or
Asian journal of pharmaceutical and clinical research?
I want a journal powered by scopus now and for the next year.
Thanks

reply

S **Sangmesh** 5 years ago

What is the difference between Simago and scopus

reply

SCImago Team

Elena Corera 5 years ago

Dear Sangmesh, Scopus is a bibliographic database of scientific journals, the most comprehensive in the world. SCImago Journal & Country Rank is a platform in which scientometric indicators of journals included in Scopus and countries are displayed. Best Regards, SCImago Team

A **Ashwani** 5 years ago

Is Asian Journal of Pharmaceutical and Clinical Research is a scopus indexed journal?

reply

SCImago Team

Elena Corera 5 years ago

Dear Ashwani, all the journals included in the SJR are indexed in Scopus. Elsevier / Scopus is our data provider. Best Regards, SCImago Team

T **Tamara Amelia** 5 years ago

we are beginner and want to publish our observation. We are interesting to publish it in this journal. could you tell us the price to publish in your journal? Thank you

Best regards,

Tamara Amelia
Faculty of Pharmacy
Universitas Indonesia

reply

B **Bayu Ardiansah** 5 years ago

It is currently 100 USD (2018)

SCImago Team

Elena Corera 5 years ago

Dear Tamara, we suggest you locate the author's instructions on the journal's website.
Best Regards, SCImago Team

Leave a comment

Name

Email
(will not be published)

I'm not a robot
reCAPTCHA
Privacy -

Submit

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the journal, experiences and other issues derived from the publication of papers are resolved. For topics on particular articles, maintain the dialogue through the usual channels with your editor.

Developed by: SCImago

Powered by: Scopus

Follow us on @ScimagoJR

Scimago Lab, Copyright 2007-2022. Data Source: Scopus®

EST MODUS IN REBUS
Horatio (Satire 1,1,106)

Cookie settings

Cookie policy