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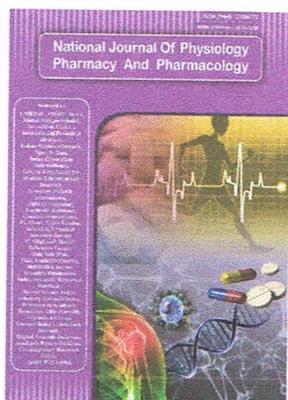
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Natl J Physiol Pharm Pharmacol. Year: 2018, Volume: 8, Issue: 2

### Original Research

- 1. Smoking-induced oxidant/antioxidant imbalance in chronic obstructive pulmonary disease: Assessment of auditory evoked potential: A comparative study of smokers and non-smokers with or without chronic obstructive pulmonary disease**

Shah Mohammad Abbas Waseem

Natl J Physiol Pharm Pharmacol. 2018; 8(2): 152-157

» Abstract (?mno=262189) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=262189>) » doi: 10.5455/njppp.2018.8.0308617082017 (<http://dx.doi.org/10.5455/njppp.2018.8.0308617082017>)

- 2. Prescribing pattern of corticosteroids among the dermatology inpatients in a tertiary care teaching hospital of north India - A retrospective, observational study**

Rohini Gupta, Pavan Malhotra

Natl J Physiol Pharm Pharmacol. 2018; 8(2): 158-162

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- 3. The effect of physiotherapy in patients with modified radical mastectomy**

Jigar N Mehta, Nirav P Vaghela, Heta Patel

Natl J Physiol Pharm Pharmacol. 2018; 8(2): 163-166

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- 4. Association of ABO and Rh blood groups with type 2 diabetes mellitus in Muzaffarnagar city**

Tanu Aggarwal, Deepankar Singh, Bhawana Sharma, Salman shafi Siddiqui, Sudha Agarwal

Natl J Physiol Pharm Pharmacol. 2018; 8(2): 167-170

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<http://dx.doi.org/10.5455/njppp.2018.8.0830324082017>

5. **A comparative study of event-related potential P300 between normal individuals and individuals with prediabetes**

Satabdi Saha, Vijayadas Muradi, Preethi Bangalore Lakshmana Gowda, Pramila Kalra  
**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 171-176**

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<http://dx.doi.org/10.5455/njppp.2018.8.0309817082017>

6. **Effect of cold pressor test on blood pressure in normotensives and hypertensives**

Mythri G, Shireen Swaliha Quadri

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 177-181**

» Abstract (?mno=273665) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273665>) » doi: 10.5455/njppp.2018.8.0010728417082017001 (<http://dx.doi.org/10.5455/njppp.2018.8.0010728417082017001>)

7. **Nerve conduction studies in cases with long-term unintentional exposure to pesticide spraying**

Sakshi Atul Gawande, Shivaji Surybhan Chalak, Ashish Shrinath Banginwar, Kiran Narayan Avachar, Jagdish Dhondiba Powar, Prafulla Ratanlal Chandak

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 182-186**

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<http://dx.doi.org/10.5455/njppp.2018.8.0831918082017>

8. **Emerging causes for antibiotic resistance: Second-year medical undergraduate's perspective: A cross-sectional study**

Padmanabha T S, Rajashekar Y R

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 187-191**

» Abstract (?mno=273844) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273844>) » doi: 10.5455/njppp.2018.8.0729011082017  
<http://dx.doi.org/10.5455/njppp.2018.8.0729011082017>

9. **The pattern of unmet need of contraceptive use in married couples attending a tertiary care hospital in Eastern India**

Sudarshan Dash, Ratikanta Tripathy, Bhaskar Thakur, Suresh Chandra Pradhan, Pushpam Soni, Manjushree Mohanty

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 192-196**

» Abstract (?mno=273696) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273696>) » doi: 10.5455/njppp.2018.8.0728511082017  
<http://dx.doi.org/10.5455/njppp.2018.8.0728511082017>

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Nirav P Vaghela, Sanket K Parekh

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 197-201**

» Abstract (?mno=274498) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=274498>) » doi: 10.5455/njppp.2018.8.0830218082017  
<http://dx.doi.org/10.5455/njppp.2018.8.0830218082017>

11. **Influence of age, height, gender on median and ulnar nerve conduction study**

Senthil Kumari K R, Umamaheswari Kannan, Aruna B Patil

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 202-206**

» Abstract (?mno=273875) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273875>) » doi: 10.5455/njppp.2018.8.0729230082017 (<http://dx.doi.org/10.5455/njppp.2018.8.0729230082017>)

**12. Correlation of blood pressure and QT interval**

Sudeep Satpathy, Smita Satpathy, Prakash Kumar Nayak

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 207-210**

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**13. Sympathetic function tests during pre- and post-menstrual phases in young women**

Sunita Manikrao Handergulle, Savita Satyanarayan Somani

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 211-214**

» Abstract (?mno=274852) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=274852>) » doi: 10.5455/njppp.2018.8.0831106092017 (<http://dx.doi.org/10.5455/njppp.2018.8.0831106092017>)

**14. Cost analysis of oral anti-platelet drugs – A pharmacoeconomic study**

Lakshmi Deepika P, Supriya Priyambada

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 215-218**

» Abstract (?mno=277167) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=277167>) » doi: 10.5455/njppp.2018.8.0934313092017 (<http://dx.doi.org/10.5455/njppp.2018.8.0934313092017>)

**15. Effect of glycemic control on short-term memory in Type 2 diabetics**

Mythri G, Shireen Swaliha Quadri

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 219-223**

» Abstract (?mno=273787) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273787>) » doi: 10.5455/njppp.2018.8.0728713092017 (<http://dx.doi.org/10.5455/njppp.2018.8.0728713092017>)

**16. Effect of age and gender on QT interval**

Sudeep Satpathy, Smita Satpathy, Prakash Kumar Nayak

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 224-227**

» Abstract (?mno=275621) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=275621>) » doi: 10.5455/njppp.2018.8.0832304092017 (<http://dx.doi.org/10.5455/njppp.2018.8.0832304092017>)

**17. Waist-hip ratio and cardiac responses to exercise in young adults with parental history of coronary heart disease**

Pushpa K, Arun Kumar H P

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 228-232**

» Abstract (?mno=273321) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=273321>) » doi: 10.5455/njppp.2018.8.0727930082017 (<http://dx.doi.org/10.5455/njppp.2018.8.0727930082017>)

**18. Does visceral fat affect aerobic fitness in Indian adolescents of 18-19 years' age group?**

Shweta M Parikh, Hasmukh D Shah, Sushil Kumar Singh

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 233-238**

» Abstract (?mno=274769) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=274769>) » doi: 10.5455/njppp.2018.8.0830905092017 (<http://dx.doi.org/10.5455/njppp.2018.8.0830905092017>)

**19. A comparative study of lipid profile, body mass index, and waist circumference among Type 2 diabetes mellitus patients with poor and good metabolic control and normal age-matched control group**

Sandhya Menon, Rajeev Venugopal

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 239-243**

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**20. Molecular docking study on curcumin and its derivatives as inhibitors of BACE1 in the treatment of Alzheimer's disease**

Geetha Raghu, Aishwarya Karunanithi, Iyanar Kannan, Lakshmi Preetha K

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 244-250**

» Abstract (?mno=279934) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=279934>) » doi: 10.5455/njppp.2017.7.1038623102017 (<http://dx.doi.org/10.5455/njppp.2017.7.1038623102017>)

**21. The effect of hydroalcoholic extract of Mentha piperita on pentylenetetrazol-induced convulsion in mice**

N Sistani Karampour, Ardeshir Arzi, Masumeh Rahimzadeh

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 251-256**

» Abstract (?mno=278138) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=278138>) » doi: 10.5455/njppp.2017.7.0936027102017 (<http://dx.doi.org/10.5455/njppp.2017.7.0936027102017>)

**22. Antibacterial activity of ethanol extract and fraction of Rambutan leaf (Nephelium lappaceum) against Pseudomonas aeruginosa multiresistant**

Sulistiyaningsih Sulistiyaningsih, Nabila Mudin S, Imam Adi Wicaksono, Arif Budiman

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 257-261**

» Abstract (?mno=278133) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=278133>) » doi: 10.5455/njppp.2017.7.0935926102017 (<http://dx.doi.org/10.5455/njppp.2017.7.0935926102017>)

**23. Coadministration of ketamine with conventional antidepressants in animal models of depression**

Lourdu Jafrin A, Venkata Naveen Kumar Paruchuri, Ramchandar Ramanan, Rajaram P

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 262-266**

» Abstract (?mno=265869) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=265869>) » doi: 10.5455/njppp.2017.7.1042203112017 (<http://dx.doi.org/10.5455/njppp.2017.7.1042203112017>)

**24. Study on the effects of varying concentrations of xylitol on the weight, and blood glucose, and cholesterol levels of Mus musculus L. (ICR mice)**

Irben Jeremy Y Sy, Michael B Ples, Rodel Jonathan S Vitor II

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 267-272**

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25. **Pain sensitivity and cardiovascular reactivity to the experimental induced cold pressor pain during different phases of menstrual cycle in young Indian females**  
Rajani Bala Jasrotia, Arvind Kanchan, Jaman Mohan Harsoda, Rahul Saini, Mayank Agarwal

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 273-277**

» Abstract (?mno=286387) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=286387>) » doi: 10.5455/njppp.2018.8.1248725122017 (<http://dx.doi.org/10.5455/njppp.2018.8.1248725122017>)

26. **Comparison of the effect of two selected resistance training patterns on some physical and physiological factors of elite freestyle wrestler young boys**

Mohammad Mohammadi, Hijatollah Siavoshy, Seyyed Gholam Hossein Rahimi

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 278-284**

» Abstract (?mno=280947) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=280947>) » doi: 10.5455/njppp.2017.7.1040508112017 (<http://dx.doi.org/10.5455/njppp.2017.7.1040508112017>)

27. **Lipid profile, Thyroid profile and Eating behavior in Pre-hypertensive women**

Soumya Mishra, Sai Sailesh Kumar, Archana Rajagopalan, Srilatha Bashetti, Minu Johny, Joseph Kurien Mukkadan

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 285-287**

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28. **Variation in erythrocyte and leukocyte counts before and after normal vaginal delivery**

Sneha K, Girish Babu M, Lepakshi B G

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 288-291**

» Abstract (?mno=283963) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=283963>) » doi: 10.5455/njppp.2017.7.1145322112017 (<http://dx.doi.org/10.5455/njppp.2017.7.1145322112017>)

### Short Communication

29. **Lower significant rate of etomidate-induced myoclonus for procedural sedation in emergency department of a tertiary care hospital**

Ashly Alexander Fernandez, Neethu C M

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 292-294**

» Abstract (?mno=274313) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=274313>) » doi: 10.5455/njppp.2018.8.0728417082017 (<http://dx.doi.org/10.5455/njppp.2018.8.0728417082017>)

### Case Report

30. **Rabeprazole-induced acute interstitial nephritis: A case report**

Krishnapriya Raj, Shilpa Raj, Lakshmi R

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 295-296**

» Abstract (?mno=272914) » PDF (<https://www.ejmanager.com/fulltextpdf.php?mno=272914>) » doi: 10.5455/njppp.2018.8.0726611082017 (<http://dx.doi.org/10.5455/njppp.2018.8.0726611082017>)

31. **Cytokine hemoadsorption therapy - An adjuvant in the management of septic shock with multi-organ dysfunction: A case report**

Vishnu Manohar, Shilpa Raj, Sreekrishnan T P, Gireesh Kumar K P

**Natl J Physiol Pharm Pharmacol. 2018; 8(2): 297-299**

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Jaykaran Charan, Deepak Saxena, Summaiya Mulla  
**Natl J Physiol Pharm Pharmacol. 2012; 2(2): 78-83**  
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## RESEARCH ARTICLE

### Antibacterial activity of ethanol extract and fraction of Rambutan leaf (*Nephelium lappaceum*) against *Pseudomonas aeruginosa* multiresistant

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#### ABSTRACT

**Background:** Nosocomial infection is a hospital-acquired infection that can cause various severe diseases. The main bacteria that causes nosocomial infection is *Pseudomonas aeruginosa* multiresistant (PAMR). The Rambutan leaf (*Nephelium lappaceum*) is known to have antibacterial activity because it is suspected to have the content of flavonoids, polyphenols, and tannins. **Aims and Objectives:** This research was conducted to determine the antibacterial activity, minimum inhibitory concentration (MIC), and minimum bactericidal concentration (MBC) of the extract and the most active fraction. **Materials and Methods:** The research was started by extraction and then fractionation by liquid-liquid extraction to obtain ethyl acetate, water, and n-hexane fraction. After that, antibacterial activity was carried out by the agar diffusion method, and the value of MIC and MBC was determined by the microdilution method. **Results:** The result showed that ethanol extract, ethyl acetate fraction, and water fraction of the Rambutan leaf had antibacterial activity against PAMR, of which the ethyl acetate fraction was the most active fraction. The value of MIC and MBC of the extract and ethyl acetate fraction was in a concentration 2.5% w/v and 5% w/v against PAMR. **Conclusions:** The antibacterial activity of this extract and fractions against PAMR was probably derived from flavonoids, polyphenols, saponins, and tannins.

**KEY WORDS:** Nosocomial Infection; *Nephelium lappaceum*; Antibacterial; *Pseudomonas aeruginosa* Multiresistant

#### INTRODUCTION

Nosocomial infection is hospital-acquired infection that can cause various severe disease, such as pneumonia, urinary tract infections, gastroenteritis, and puerperal sepsis.<sup>[1]</sup> This can occur due to the lack of hygiene in the hospital environment. Nosocomial infections can be caused by bacteria, viruses, and fungi.<sup>[2]</sup> One of the main bacteria that had resistance to antibiotics on nosocomial infections is *Pseudomonas aeruginosa*.<sup>[1]</sup>

*P. aeruginosa* multiresistant (PAMR) is *P. aeruginosa*, which has been resistant to various antibiotics, such as seftazidime of 34.7%, sefepime 27.7%, piperasilin-tazobactam 36.9%, imipenem 27.2%, and ciprofloxacin 30.1%.<sup>[3,4]</sup>

Antibiotic resistance can occur due to the use of antibiotics that are not rational. Clinical treatment using broad-spectrum antibiotics regularly is a common factor causing changes in patterns of bacterial infections and the patterns of bacterial resistance to various antibiotics. Antibiotic resistance leads to increase mortality and morbidity in hospitals. To overcome this, it is necessary to research the antibacterial activity of the active compounds contained in the natural materials.

Indonesia is an archipelagic country with a variety of biodiversity. Various kinds of plants can thrive in Indonesia. One of the plants that is commonly found is Rambutan (*Nephelium lappaceum* L.). Conventionally, people use

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