

ANTIMICROBIAL ACTIVITY OF CITRUS FRUITS ON CERTAIN PATHOGENIC MICROORGANISM

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Abstract: The main objective of present study was to study the antibacterial effect of *Citrus limon* juice extract against *Escherichia coli*, *Salmonella*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Staphylococcus aureus*, *Streptococcus pyogenes*. Extract of *Citrus limon* juice was prepared for antibacterial study and Norfloxacin was taken as control antibiotic. The antibacterial activity of *Citrus limon* juice extract was detected by using agar well diffusion method. In the present study it was observed that *Citrus limon* juice extract showed maximum antimicrobial activity against *Staphylococcus aureus* which was 115% more as compared to Norfloxacin (10mg/ml). Similar results have been observed against bacteria such as *Salmonella*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Staphylococcus aureus*, *Streptococcus pyogenes*. These results confirmed that *Citrus limon* is a very important and effective medicinal plant against bacterial.

Keywords: *Citrus limon*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Staphylococcus aureus*, *Streptococcus pyogenes*

REFERENCES

Deshwal, V.K. and Vig, K. (2011a). Screening for Antibacterial activity of seeds of *Tribulus terrestris* L. growing in Uttarakhand (INDIA). *International Journal of Pharmaceutical Invention*, **1(1)**: 42-46.

Susser, G.O. (1997). The Great Citrus Book. A Guide with recipes. Ten Speed Printing Press.

Okwu, D.E. (2008). Citrus Fruits: A rich source of Phytochemicals and their roles in Human Health. *International Journal of Chemical Science*, **6(2)**: 451-471.

Chanthaphon, A., Chanthachum, S. and Hongpattarakere, T. (2008). Antimicrobial activities of essential oils and crude extracts from tropical *Citrus spp.* against food-related microorganism. *Songklanakarin Journal of Science and Technology*, **30(1)**:125-131.

Mandalari, G., Bennett, R.N., Bisignano, G., Saija, A., Dugo, G., Faulds, C.B. and Waldron, K.W. (2006). Characterization of flavonoids and pectin from bergamot (*Citrus bergamia* Risso) peel, a major byproduct of essential oil extraction. *Journal of Agriculture And Food Chemistry*. **54**:197-203.

Adode, A. (2002). Nature Power: Revised Edition. Don Bosco Training Centre, Akure: 1-98.

Roger, G.D.P. (2002). Encyclopedia of Medicinal Plant, Education and Health Library Editorial Safeliz S.L. Spsin, **265(1)**:153-154.

Hasija, S., Ibrahim, G. and Wadia, A. (2015). Antimicrobial Activity of *Citrus sinensis* (orange), *Citrus limetta* (Sweet Lime) and *Citrus limon* (lemon) Peel oil on Selected Food Borne Pathogens. *International Journal of life Science Research*, **3(3)**: 35-39.

Ithete, N.L., Stoffberg, S., Corman, V.M., Cottontail, V.M., Richards, L.R., Schoeman, M.C., Drosten, C., Drexler, J.F. and Preiser, W. (2013). Multidrug-Resistant *Escherichia coli*

Bacteremia. *Emerging Infectious Diseases*, **19**:1699-1701.

Zaki, S.A. and Karande, S. (2011). Multidrug-resistant typhoid fever: A review. *The Journal of Infection in Developing countries*, **5(5)**: 324-337.

Hirsch, E.B. and Tam, V.H. (2010). Impact of multidrug-resistant *Pseudomonas aeruginosa* infection on patient outcomes. *Expert Review of Pharmacoeconomics Outcomes Research*, **10(4)**: 441-451.

Mandal, D., Dash, S.K., Das, B., Sengupta, M., Kundu, P.K. and Roym, S. (2015). Isolation and Characterization of multi-drug resistance *Proteus vulgaris* from clinical samples of UTI infected patients from midnapore, West Bengal. *International Journal of Life Science and Pharma Research*, **5(2)**: 132-145.

Neyra, R.C., Frisancho, J.A., Rinsky, J.L., Resnick, C., Carroll, K.C., Rule, A.M., Ross T., You, Y., Price, L.B. and Silbergeld, E.K. (2014). Multidrug-Resistant and M ethicillin-Resistant *Staphylococcus aureus* (MRSA) in Hog Slaughter and Processing Plant Workers and Their Community in North Carolina (USA). *Environmental Health Perspectives* (<http://dx.doi.org/10.1289/ehp.1306741>). : 1-32.

Pieretti, B., Canovari, B., Moretti, M., Pieretti, C. and Pazzaglia, E. (2017). Drug-resistant *Streptococcus pyogenes*: a case report of pyoderma and Cellulitis. *Microbiologia Medica*, **32**: 112-113

Janovská, D., Kubíková, K. and Kokoška, L. (2003). Screening for antimicrobial activity of some medicinal plants species of traditional Chinese medicine, *Czech Journal of Food Science*. **21**, 107-110.

Deshwal, V.K. and Vig, K. (2011a), Screening for Antibacterial activity of seeds of *Tribulus terrestris*

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- L. growing in Uttarakhand (INDIA), *International Journal of Pharmaceutical Invention*, **1(1)**: 42-46.
- Deshwal, V.K.** (2013). Antibacterial investigation of black pepper against *Shigella dysenteriae*. *Journal of Plant Development Sciences*, **5(1)**: 89-90
- Suja, D., Bupesh, G., Rajendiran, N., Mohan, V., Ramasamy, P., Muthiah, N.S, Elizabeth, A.A., Meenakumari, K. and Prabu, K.** (2017). Phytochemical Screening, Antioxidant, Antibacterial Activities of *Citrus Limon* and *Citrus Sinensis* Peel Extracts. *International Journal of Pharmacognosy Chinese Medicine*, **1(2)**:108.
- Hindi, N.K.K. and Chabuck, Z.A.G.** (2013). Antibacterial activity of different aqueous Lemon extracts. *Journal of Applied Pharmaceutical Science*, **3(06)**:074-078.
- Deshwal, V.K.** (2013). Antimicrobial investigation of *Piper nigrum* L. against *Salmonella typhi*. *Journal of Drug Delivery and therapeutics (JDDT)*. **3(3)**: 100-103.
- Deshwal, V.K. and Siddiqui, M.M.M.** (2013). Screening and evaluation of anti-microbial activity in *Tylophora indica*. *Journal of Plant Development Sciences*. **5(2)**: 223-225.
- Deshwal, V.K., Vig, K., Singh, S.B. and Devi, P.D.** (2012). Evaluation of the Antibacterial Activity of bark of *Litchi chinensis* against *Escherichia coli*, a UTI causing Organism. *Journal of plant development sciences*, **4(1)**: 101-103.
- Deshwal, V.K. and Vig, K.** (2011a). Screening for Antibacterial activity of seeds of *Tribulus terrestris* L. growing in Uttarakhand (INDIA). *International Journal of Pharmaceutical Invention*, **1(1)**: 42-46.
- Deshwal, V.K. and Vig, K.** (2011b). Isolation and characterization of Urinary tract infection (UTI) causing pathogens and their comparative study in different genders. *Development Microbiology and Molecular Biology*, **2(2)**: 113-116.
- Deshwal, V.K.** (2012b). Antibacterial activity of *Piper nigrum* Linn. against *E. coli* causing Urinary tract infection. *International Journal of Pharmaceutical Invention*, **2(2)**: 1-7.