



Bangladesh Journal of Pharmacology

Volume: 11; Number 2; Year 2016



Cite this article as: Chander MP, Vijayachari P. *In vitro* antimicrobial and anti-oxidant potentials of selected medicinal plants used by the indigenous tribes of Andaman and Nicobar Islands, India. Bangladesh J Pharmacol. 2016; 11: 330-32.

Table II								
Antimicrobial and anti-oxidant activities of the selected ethnomedicinal plants								
Botanical Name	Sa	Se	Bc	Ec	Pa	Kp	Ca	DPPH activity IC ₅₀ (µg/mL)
<i>A. indicum</i>	-	-	-	11.0 ± 0.0	-	9.7 ± 0.6	-	80.7 ± 0.5
<i>A. conyzoides</i>	-	-	-	-	-	-	-	96.1 ± 1.7
<i>A. squamosa</i>	-	-	-	-	-	-	-	49.3 ± 0.7
<i>B. rotunda</i>	14.3 ± 0.6	17.7 ± 0.6	17.0 ± 0.0	14.7 ± 1.5	9.7 ± 0.6	12.3 ± 0.6	-	51.4 ± 2.7
<i>C. viscosa</i>	-	-	-	-	-	-	-	136.1 ± 2.3
<i>G. falcatum</i>	-	-	-	14.7 ± 0.6	-	-	-	149.5 ± 3.3
<i>G. calocarpum</i>	18.3 ± 1.5	15.7 ± 1.5	19.7 ± 0.6	-	11.3 ± 0.6	-	-	63.2 ± 0.1
<i>I. obscura</i>	-	-	-	-	-	-	-	557.6 ± 32.6
<i>L. aequata</i>	12.3 ± 0.6	-	-	12.0 ± 0.0	-	-	-	67.5 ± 0.6
<i>L. indica</i>	-	-	-	-	-	-	-	44.2 ± 0.2
<i>M. peltata</i>	-	-	-	-	-	-	-	46.7 ± 0.8
<i>M. citrifolia</i>	21.3 ± 0.6	17.0 ± 1.0	14.0 ± 1.0	15.7 ± 1.5	13.3 ± 1.2	21.7 ± 0.6	13.3 ± 0.6	26.4 ± 0.9
<i>M. oleifera</i>	-	-	10.7 ± 0.6	-	-	9.7 ± 0.6	-	44.9 ± 0.2
<i>P. corymbosa</i>	11.3 ± 2.1	-	-	12.7 ± 0.6	-	-	-	74.3 ± 0.6
<i>S. alata</i>	-	-	-	-	-	-	12.0 ± 1.0	124.2 ± 1.3
<i>T. crispa</i>	-	-	-	-	-	-	-	64.3 ± 2.9
<i>U. lobata</i>	-	11.3 ± 0.6	14.0 ± 0.0	10.0 ± 0.0	-	-	-	47.5 ± 3.1
<i>W. biflora</i>	13.3 ± 0.6	-	-	-	-	-	-	263.9 ± 12.3
Ascorbic acid	ND	ND	ND	ND	ND	ND	ND	13.9 ± 0.1
Gentamicin	17.7 ± 0.6	21.7 ± 0.6	22.7 ± 1.2	18.3 ± 0.6	12.7 ± 0.6	14.0 ± 0.0	-	ND
Nystatin	-	-	-	-	-	-	17.7 ± 0.6	ND

Sa- *S. aureus*; Se- *S. epidermidis*; Bc- *B. cereus*; Ec- *E. coli*; Pa- *P. aeruginosa*; Kp- *K. pneumonia*; Ca- *C. albicans*; '-' indicates No activity; 'ND' Not done

The antimicrobial activities of the investigated extracts against human pathogens used by agar well diffusion method were shown in Table II. Extracts were compared with gentamicin and nystatin as standards. Results obtained in the current study revealed that selected plant extracts were found to possess potential antimicrobial activity against tested organisms. The *M. citrifolia* extract showed activity against all the pathogens tested followed by *B. rotunda* and *G. calocarpum* while the highest activity (21.7 ± 0.6) was shown by *M. citrifolia* against *K. pneumonia*.

The effect of anti-oxidant on DPPH radical scavenging was thought to be due to their hydrogen donating ability or radical scavenging activity. The free radical scavenging activity depends upon the chemical composition of extracts (Nilgun et al., 2007). The DPPH radical scavenging results showed that *M. citrifolia* extract exhibited highest activity having IC₅₀ value 26.4

± 0.9 µg/mL followed by *L. indica* and *M. oleifera* (Table II).

Thus, this study indicates that scientific studies carried out on medicinal plants having traditional claims of effectiveness might warrant fruitful results.

The authors acknowledge to the Indian Council of Medical Research (ICMR), New Delhi, India for providing financial grant for the study (Project No. Tribal/43/2008-ECD-II). Authors are also thankful to Botanical Survey of India, Port Blair for their help in identification of plant specimens.

M. Punnam Chander and P. Vijayachari

Department of Medical Microbiology and Molecular Biology, Regional Medical Research Centre (Indian Council of Medical Research), Port Blair 744 101, Andaman and Nicobar Islands, India.

Corresponding author:
email: pblicmr@sancharnet.in

References

- Chander MP, Kartick C, Gangadhar J, Vijayachari P. Ethnomedicine and healthcare practices among Nicobarese of Car Nicobar: An indigenous tribe of Andaman and Nicobar Islands. *J Ethnopharmacol.* 2014; 158: 18-24.
- Chattopadhyay D, Maiti K, Kundu AP, Chakraborty MS, Bhadra R, Mandal SC, Mandal AB. Antimicrobial activity of *Alstonia macrophylla*: A folkore of bay islands. *J Ethnopharmacol.* 2001; 77: 49-55.
- Chethana GS, Hari VKR, Mirzaei F, Gopinath SM. Review on multidrug resistant bacteria and its implication in medical sciences. *J Biol Sci Opin.* 2013; 1: 32-37.
- Diallo D, Hveem B, Mahmoud MA, Betge G, Paulsen BS, Maiga A. An ethnobotanical survey of herbal drugs of Gourma District, Mali. *Pharm Biol.* 1999; 37: 80-91.
- Harborne JB. *Phytochemical methods: A guide to modern techniques of plant analysis.* London, Chapman and Hall, 1998.
- Kokate CK, Purohit AP, Gokhale SB. *Practical pharmacognosy.* 2nd ed. Delhi, Vallabh Prakashan, 2004.
- Nilgun GB, Gulcin O, Samin Y. Evaluation of the antiradical and anti-oxidant potential of grape extracts. *Food Control.* 2007; 18: 1131-36.
- Rojas JJ, Ochoa VJ, Ocampo SA, Munoz JF. Screening for antimicrobial activity of ten medicinal plants used in Colombian folkloric medicine: A possible alternative in the treatment of non-nosocomial infections. *BMC Complement Altern Med* 2006 6: 2.
- Singh R, Muftah AMS, Asma B. Antibacterial and antioxidant activity of *Mentha piperita* L. *Arabian J Chem.* 2015; 8: 322-28.
-