Ethnomedicinal plants diversity resources and herbal healing practices for enhancing rural health and livelihood security for the indigenous people of Darjeeling Himalaya of West Bengal, India

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Darjeeling is the northern-most hilly district of West Bengal and it falls under the Eastern Himalaya and it has rich diversity of vegetation with different physiographic features and their ecological relationship. It lies between 27º31'05" and 26º27'10" North latitude and between 88º53'00" and 87º59'30" East longitude. Darjeeling Himalayan region has multicultural, multilingual and multi ethnic races. The pre inhabited ethnic group live in the remote rural areas are Lepcha, Sherpa, Yolmo, Limbu, Khambu Rai, Bhujel, Manger, Mukhia and Tamang. Other inhabitants of villages and far-flung areas are Newari/Pradhan, Sharma, Chettri, Kami and Damai. They are dependent to the forest resources for their day-to-day activities. The present work is focused on the uses of different ethnomedicinal plant species on basic health care and day to day use by all the inhabitants in the area. The botanical names arranged alphabetically with their families, local names (Nepali) of 273 plant species have been recorded and the plant parts which are used as medicines and others have been tabulated for the specific disease and ethnic purposes. A large number of ethnomedicinal plant species were used by the local inhabitants in Darjeeling Himalaya for treating different ailments and many other purposes. This knowledge remains mostly with the traditional medical practitioners called Baidhang or Jhankri who were mostly old illiterate people of the regions. Those people had a sound knowledge of the ethnobotany, ethnobiology and biodiversity in their surrounding environments.

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Antimicrobial property of crude butanol, dichloromethane and hexane leaf extracts of *Wrightia antidysenterica*

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*Wrightia antidysenterica*, belonging to family Apocynaceae, is commonly grown in lowlands of the country. Several species of the same family were reported to have medicinal properties. The research analyzes the antimicrobial properties of crude butanol, dichloromethane (DCM) and hexane leaf extracts of *Wrightia antidysenterica*. Extracts were tested against significant strains of microorganisms: *Staphylococcus aureus*, *Staphylococcus epidermidis* and *Bacillus, Escherichia, Psuedomonas, Micrococcus, Streptococcus, Klebsiella, Proteus, Salmonella*, and *Candida*. Zones of inhibition in the agar disc diffusion method revealed that *S. pneumoniae* (14.40 mm) and *S. epidermidis* (15.70 mm) are susceptible to DCM leaf extracts. The antibiotic activity of this leaf extracts is attributed to the phytochemicals: steroids, tannins, phenols, alkaloids, saponins, coumarins, and terpenoids. The two-fold serial dilution determined that at a concentration of 100 mg/ml, the DCM leaf extract possessed antibiotic activity comparable to gentamicin against *S. pneumoniae* (14.40 mm) and *S. epidermidis* (15.70 mm) are susceptible to DCM leaf extracts. The antibiotic activity of this leaf extracts is attributed to the phytochemicals: steroids, tannins, phenols, alkaloids, saponins, coumarins, and terpenoids. The two-fold serial dilution determined that at a concentration of 100 mg/ml, the DCM leaf extract possessed antibiotic activity comparable to gentamicin against *S. pneumoniae* and *S. epidermidis*. This was recorded as the MIC. The activity of 100 mg/ml is observed to be only bacteriostatic upon streaking and 24-incubation on MHA; whereas, activity of gentamicin remained bactericidal against the two species of bacteria. Therefore, *Wrightia antidysenterica* cannot be used as an alternative bactericidal agent against *S. epidermidis* and *S. pneumoniae*. However, it can be used as a bacteriostatic agent against these two species of bacteria.

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