DISCUSSION
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*T. Populnea* and *A. vasica* commonly referred to as *Parsipu* and *Adulasa* were one of the most frequently used medicinal plants by the native people and traditional physicians. In order to understand the scientific validity of *Parsipu* and *Adulasa* the present research work was carried out. As a first stage, *T. Populnea* and *A. vasica* leaves were individually extracted with four different solvents (acetone, ethanol, methanol, and chloroform:toluene) and their antibacterial spectrum were evaluated (Table 1 to 3). In *T. populnea*, the methanol extract obtained through percolation was found to be effective against all the microorganisms tested except *Proteus vulgaris*. Maximum effect was found against *E. coli* followed by *B. subtilis, C. freundii S. paratyphi, S. aureus* and *E. aerogen*. Such promising antibacterial potential was also recorded with acetone extract where it was extremely efficacious against *B. subtilis* (20 mm) followed by *E. aerogens* (18 mm), *S. paratyphi* (17 mm) and *P. vulgaris* (16 mm). While the cold extract of *T. populnea* percolated with ethanol and chloroform: toluene solvent mixtures were moderately sensitive against the bacterial genera tested.

The methanol extract of *A. vasica* obtained through percolation is more effective against *B. subtilis* followed by *S. aureus, E. coli, S. paratyphi* and *P. aeruginosa* but it did not express any inhibitory activity against *E. aerogens* and *P. vulgaris*. Next to methanol extract, ethanol extract was found to be effective against all the bacterial strains tested except *S. aureus*. The acetone extract is also
effective against the nine bacterial strains tested with a maximum inhibitory activity against *B. subtilis*. But it did not produce any inhibitory activity against *E. aerogens*. While the chloroform: toluene solvent extracts were comparatively weak with moderate antibacterial potentials.

The data presented in Table 2 and 4 illustrates the antibacterial spectrum of soxhlet extracts of *T. populnea* and *A. vasica* respectively. The methanolic extract of both the plants were weak with less antibacterial potential. In both the plants among the other three extracts, acetone extract was recorded to exhibit notable antimicrobial potential followed by chloroform: toluene combination and then by ethanol extract.

Among the various methods of extraction, percolation- cold extraction was often recorded to be economical and productive. The present study is supported by the earlier observations made by Irobi et al., (1994). Martinez et al., (1996) and Dharmaratne et al., (1999). The antimicrobial activities of water and ethanol extracts (percolation) of *Bridelia ferruginea* against gram positive and gram negative bacteria and the fungi *Candida albicans* was reported by Irobi et al., (1994). Similarly, Martinez et al., (1996) have shown the potentials of ethanolic extracts of *Schinus terebinthifolius* against *S. aureus*. Dharmaratne et al., (1999) have recorded the potentials of various solvent percolated extracts of *Calophyllum sp* against *Methicillin Resistant Staphylococcus aureus* (MRSA). The methanolic extract of *Mangifera indica* exhibited good antibacterial activity against *E. coli* (Rajan et al., 2006). Kim et al., (2005) reported the antibacterial
activity of ethyl acetate, methonal and water extracts of turmeric against Methicillin Resistant *S. aureus* (MRSA). They reported a higher antibacterial activity with ethylacetate extract than the methanol and water extracts. Leeja and Thoppil (2007) reported that the methanol extract of *Origanum majorana* showed considerable activity against *B. subtilis*.

In the present study among the four different solvents used, the methanol extract of both *T. populnea* and *A. vasica* obtained through percolation was found to be more effective against majority of the bacterial strains tested. This observation is in line with the results of Sairam et al., (2003), Gabino Garrido et al., (2004), Rajan et al., (2006), Vimala and Elizabeth (2006) and Leeja and Thoppil (2007). The different extracts of *T. populnea* and *A. vasica* were recorded to elaborate differential antimicrobial activity that can be attributed to the presence of various bioactive molecules such as tannins, phenols alkaloids, carboxylic acids, resins, steroids etc.

The Bioassay tests performed in the *T. populnea* plant showed that their extracts inhibited the growth of bacteria (http://www.jusir.org/issues/0112/01-XX/jussir 220 24.pdf). The tannis, essential oils, dyes and gums of *T. populnea* have important medicinal value (Yoganarasimhan, 2000). Due to the presence of different bioactive factors *T. populnea* plant found to possess various medicinal properties such as antifertility, antibacterial, antiinflammatory, anti oxidants purgative and hepatoprotective activity. (Kothare *et al.*, 1988) *T. populnea* also contribute to memory - enhancement
effects. The ethanol extracts of T. populnea exhibits significant improvement in the memory of young and aged rats. So it would be worth while to explore the potential of this plant in the management of Alzheimer patients (Page et al., 1981).

Research performed over the last three decades revealed that the alkaloids present in the leaves of A. vasica possess respiratory stimulant activity. The steroids, sugars and flavonoids also have influence on micro organisms (Thappa and Agarwal, 1996). The mechanism of action of alkaloids present in A. vasica remains to be elucidated. These compounds have potentially useful phytochemicals in the management of allergic disorders and bronchial asthma. A. vasica is also accredited with antimicrobial properties which has been by the proven invivo action against Mycobacterium tuberculosis and reduction of gingival inflammation. The bioactive components present in A. vasica possess significant thrombopoietic action in mammals and is being potentially used in the management of hemorrhagic disorders (Rajini et al., 1996).

Various parts of plants and their extracts were known for their therapeutic potentials. The various extracts of different plants were reported to exhibit wide range of therapeutic benefits by Kusamaba et al., (1991) Padmaja et al.,(1993), Saxena et al., (1994), Carceres et al., (1995) and Bhakta et al., (1999). Further analysis on the selective activity of these bioactive molecules would pave way for the commercial exploitation of these compounds and will give scientific authentication to the traditional claims.