CHAPTER 5

DISCUSSION

Our results demonstrate that the antimicrobial activity of the leaf extract of *M. oleifera* affected predominantly bacterial species. The antimicrobial activity of extract might be due to the presence of lipophilic compounds that might bind within or internal to the cytoplasmic membrane (Jabeen *et al.*, 2008). The extract of *M. oleifera* leaves showed antimicrobial activity with all selected bacterial strains. *M. oleifera* leaves extracts worked in doze dependent manner, as the concentration of the extract decreased the activity also decreased, indeed different MIC values were observed against different bacterial strains. This is due to susceptibility of the species towards concentration of the extracts, after which this extract damage, the species which is not tolerable for it (Ordonez *et al.*, 2006).

In the last few years various study has been done for its antimicrobial activity from the extract made using chloroform, ethanol (Bukar *et al.*, 2010). Where as in the present study antimicrobial activity was observed in leaves extracts prepared with all the solvents viz., ethyl acetate, methanol, water, chloroform and ethanol. However there are no reports of antimicrobial activity against ethyl acetate extract. In present study ethyl acetate extract show zone of inhibition against *S. aureus*, *P. aeruginosa*, *B. subtilis* and *S. typhimurium*.

In previous papers results of antibacterial activity of *M. oleifera* extracts on food – borne bacterial isolates can be deduced that *M. oleifera* leaf ethanol extract had the
broadest spectrum of activity on the test bacteria. The results reveal that it had activity against Enterobacter spp. (7 mm), S. aureus (8 mm), P. aeruginosa (7 mm) and E. coli (7 mm) and they were sensitive at concentration of 200 mg/ml, while S. typhimurium were not sensitive at all the concentrations used (Bukar et al., 2010). Napolean et al. also reported Enterobacter spp, S. aureus, P. aeruginosa, S. typhimurium and E. coli to be sensitive to M. oleifera leaf ethanol extract at concentration of 200 mg/ml (2009). Various authors have reported antimicrobial activities of plant extracts on food – borne pathogens (Moreira et al., 2005; Kotzekidou et al., 2007; Afolabi, 2007; Atiqur Rahman and Sun, 2009).

Other paper shown that full concentration of ethanolic extracts of M. oleifera had inhibitory effects on one of the two tested microorganisms E. coli and B. subtilis. The ethanolic extracts of M. oleifera, had no inhibitory effects on other microorganisms. The mean zone of inhibition was found to be 12 mm for that of E. coli. While the aqueous extract of the same concentration showed no inhibitory effects on the tested microorganisms. (Valarmathy et al., 2010). In present study ethanolic extract shows 12 mm zone against E. coli and no zone against B. subtilis.

When the obtained results were compared to antibiotics findings; it could be concluded that the methanol and ethyl acetate extract of the leaves obtained from M. oleifera was more effective than the standard antibiotics used. According to high antimicrobial activity of the M. oleifera leaf extracts further research work should be done using this plant. More studies are needed to isolate and characterize the active compounds to be tested in vivo to determine the toxicity and the optimum dose to be used as effective as antibiotics.