Summary and Conclusions
7. SUMMARY AND CONCLUSIONS

*M. oleifera*

- Microscopical study *M. oleifera* seed kernel showed the presence of outer reticulated parenchymatous cells followed by cotyledon.
- Preliminary phytochemical analysis of alcoholic extract of *M. oleifera* seed kernel showed presence of alkaloids, flavanoids, glycosides, tannins and terpenoids.
- Powdered dried seed kernels of *M. oleifera* showed marked decrease in commonly observed symptoms of bronchial asthma in both preliminary and detailed clinical study.
- Statistically significant increase in lung volumes (FVC, FEV1 and MVV) and lung flow rates (PEFR and FEF25-75%) was observed by 3 weeks of treatment with *M. oleifera*.
- *M. oleifera* caused significant increase in preconvulsion time in guinea pigs exposed to Ach and histamine aerosol induced bronchoconstriction. Also, dose dependent inhibition of contractions induced by various agonists in guinea pig ileum suggesting its bronchodilator activity.
- Alcoholic extract of *M. oleifera* produce dose dependent protection against compound 48/80 and egg albumin induced mast cell degranulation.
- Significant anti-inflammatory activity was observed with *M. oleifera* at the dose of 200mg/kg and 400mg/kg against carrageenan induced rat pedal edema as compared to control.
- Cold aqueous extract of seed kernels of *M. oleifera* shows significant antimicrobial activity against respiratory pathogens.
- The marker compound isolated from *M. oleifera* seed kernel was found to be derivative of Benzyl isothiocyanate.

*A. aspera*

- Preliminary phytochemical analysis of alcoholic extract of *A. aspera* showed presence of alkaloids, flavanoids and saponins.
• Ash of *A. aspera* showed 41% potassium and 6% sodium.

• *A. aspera* showed marked decrease in commonly observed symptoms of bronchial asthma and statistically significant increase in lung volumes (FVC, FEV1 and MVV) and lung flow rate (PEFR) by 3 weeks of treatment in asthmatic subjects.

• Dose dependent inhibition of contractions induced by histamine and Ach were observed in guinea pig ileum by *A. aspera*. Also, significant increase in pre convulsion time with Ach (0.5%) and Histamine (0.25%) aerosol by treatment with *A. aspera* suggesting its bronchodilator activity.

• Alcoholic extract of *A. aspera* produce dose dependent protection against compound 48/80 and egg albumin induced mast cell degranulation.

• Significant anti-inflammatory activity was observed with *A. aspera* at the dose of 250mg/kg and 500mg/kg against carrageenan induced rat pedal edema as compared to control.

• Water extract of *A. aspera* shows significant anti microbial activity against respiratory pathogens.

**In conclusion,** our data suggest that *M. oleifera* and *A. aspera* possess potential anti-asthmatic activity in both clinical and experimental studies. There was appreciable decrease in severity of symptoms of asthma and also simultaneously improvement in lung function parameters of patients. Also, none of the patients showed change in any general parameters or any adverse effect in dose used. On the contrary, the hematological profile showed enhancement in the Hb level after treatment with *M. oleifera*. The possible mechanism of anti-asthmatic action may be bronchodilator, mast cell stabilizing and anti-inflammatory property. Also pharmacognostic parameters developed can be taken as one of the tool for the standardization of the plant material of *M. oleifera* seed kernels. The marker compound isolated from *M. oleifera* was found to be a derivative of benzyl Isothiocyanate.