Chapter 7  RECOMMENDATIONS AND FUTURE DIRECTIONS

Various molecules like non-polar and volatile constituents which showed the presence in pet ether extracts of rhizomes of *Hedychium spicatum var. acuminatum* were terpenoids, coumarins, and fatty acids. The galls *Pistacia integerrima* J. L. Stewart ex also showed presence of number of low polar volatile compound mainly terpenoids, vitamins and fatty acids. These have their bioactivity reported as anti-tussive, anti-asthmatic, anti-inflammatory, anti-oxidant and immunomodulator in the present study. Terpenoids present like (1R)-(+) - Alpha-Pinene, (1S)-(1) -Beta-Pinene, Levo-4-Terpineol, Levo-(-) -alpha-Terpineol, L-Bornyl Acetate, Alpha-Terpinene, Gamma-Terpinene and many others are well reported anti-oxidant, anti-inflammatory and anti-asthmatic. Many minor compounds present may also have contributed towards the overall pharmacological effect which cannot be ignored also the synergism occurring between these volatile and non-polar constituents cannot be overruled that may also have contributed towards the overall pharmacological effect which should be explored in the near future. Pre-formulation studies should be performed to furnish the characteristics of the drugs and vigorous developmental experimentation has to be done to reach the optimum formulation that can be used to deliver the drugs into the lungs through pulmonary administration via inhalation therapy to animals by compounding dry powder inhalers (DPI) of pet ether extracts. Since lyophilization and DPI preparation is known to improve drug pharmacokinetics with more therapeutic effect and least possible systemic adverse effects. This is with the benefit of reduced blood concentration, thereby reducing the systemic toxicity of the drugs. The safety and low toxicity of non-polar and volatile constituents make them suitable to be studied in child asthma so the future research is needed in this aspect too. Further research should be motivated towards the clinical efficacy in adult and elderly humans, firstly through the oral route and then followed by inhalation therapy by compounding dry powder inhalers (DPI) provided that the preclinical studies inhalation therapy do respond in a similar manner. Also the future clinical trial should be looked upon on humans to find out their role in controlling anti-inflammatory component in comparison oral steroids or inhaled glucocorticoids or aminophylline to which may prove them to be in the list of controllers in asthma medication in the far future.