

CHAPTER 37

MEDICAL SCIENCES PHARMACOLOGY

Doctoral Theses

01. CHAUDHARY (Sulekha)
Studies on the Anti-Inflammatory and Immunomodulatory Effects of AlbiziaLebbeckand Solanum Xanthocarpumin Experiemtal Model of Bronchial Asthma.
Supervisors: Prof. Kavita Gulati and Prof. A. Ray
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Abstract
(*NotVerified*)

Bronchial asthma is a heterogeneous airway disease characterized by chronic inflammation, reversible airway obstruction, airway hyper-responsiveness (AHR). Medicinal plants have emerged as effective, safe and pharmaco-economically viable alternatives/supplements to modern drugs in various disease. On the basis of the use in traditional system of medicine, *Albizialebbeck* (Sirish) and *Solanum xanthocarpum* (Kantakari) were selected for evaluating their anti-inflammatory and immunomodulatory effects and their possible cellular and molecular mechanisms in experimental models of bronchial asthma. Wistar rats were immunized and challenged with ovalbumin (OVA) to induce experimental models of bronchial asthma. Pretreatment with standardized extract (bark) of *Albizialebbeck* (100, 200 & 400 mg/kg) and standardized extract (whole plant) of *Solanum xanthocarpum* (50, 100 & 200 mg/kg) for 22 days attenuated the levels of eosinophils, neutrophils, OVA sIgE, TNF- α , IL-6, IL-4 and NF- κ B whereas, elevated the levels of IFN- γ and HDAC, in blood and BAL fluid. In OVA-induced airway remodelling model, *Albizialebbeck* (50, 100 & 200 mg/kg) and *Solanum xanthocarpum* (25, 50 & 100 mg/kg) attenuated the levels of OVA sIgE, TGF- β and IL-13, in blood and BAL fluid and hydroxyproline in lung homogenates. Measurement of oxidative stress parameters attenuated the levels of MDA and NOx and elevated the levels of GSH and SOD. Histopathological examination of lungs showed that both extracts produced reduction of inflammatory infiltrate, airway wall thickness, and goblet cell hyperplasia. In AHR model, both extracts showed their efficacy against bronchial hyper-reactivity and airflow obstruction in response to methacholine provocation test using whole body plethysmography. In conclusion, both extracts have anti-inflammatory, immunomodulatory, anti-remodelling, anti-oxidant and anti-hyperresponsive activity and explain the probable mechanisms contributing to the therapeutic benefits in bronchial asthma. The acute and sub-acute toxicity studies showed that both extract are safe up to the dose of 2000 mg/kg in acute and 1000 mg/kg in sub-acute toxicity studies.

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1. Introduction 2. Review of literature 3. Aims and objectives 4. Material and methods
5. Results 6. Discussion 7. Summary and conclusion 8. Bibliography 9. Appendices.
Publication.

02. DUBEY (Harikesh)
Experimental Studies on the Association Between Alzheimer's Disease and Diabetes Mellitus: A Novel Approach to Possible Therapeutic Strategies.
Supervisors: Prof. Anita Kotwani and Prof. Thirumurthy Velpandian
Th 23362

Contents

1. Introduction 2. Review of literature 3. Aims and objectives 4. Material and methods 5. Results 6. Discussion 7. Summary and conclusion. References. Annexures.