Effect of PHE against Trypsin and Egg-albumin Induced Experimental Model of Asthma in Mice

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ABSTRACT
The present investigation was carried out to study the effect of PHE in experimental induced bronchial asthma in mice. Trypsin and egg-albumin induced chronic model of asthma was used and various parameters were measured on 35th day. The asthmatic control group showed lower level of pO₂, tidal volume, airflow rate and higher respiratory rate, serum bicarbonate level, eosinophil count in bronchoalveolar lavage (BAL) fluid compared to normal control group. Dexamethasone and PHE treated groups showed higher pO₂ level, tidal volume, airflow rate whereas lower respiratory rate, serum bicarbonate level, eosinophil count in bronchoalveolar lavage fluid compared to asthmatic control group. Histopathological examination of lungs showed more prominent alveolar and muscular layer destruction in asthmatic control group than dexamethasone and PHE treated groups. PHE has beneficial effect in asthma and might be used for the treatment of bronchial asthma.

KEYWORDS: asthma; trypsin; egg albumin; eosinophil; dexamethasone.

Introduction
Bronchial asthma is an inflammatory disorder of the airways characterized by various airway obstruction, airway inflammation and bronchial hyper responsiveness (Djukanovic et al., 1990) and is a global health problem that results from a complex interplay between genetic and environmental factors (Phillip, 2003). Nearly 7–10% of the world population suffers from bronchial asthma. Among several respiratory diseases affecting man, bronchial asthma is the most common disabling syndrome. The currently used drugs for the treatment of this dreadful disease in modern medicine have major limitations owing to low efficacy, associated adverse events and compliance issues (Salib et al., 2003). Therefore, there is a dire need to identify effective and safe remedies to treat bronchial asthma (Govindan et al., 1999).

Herbal medicines are being used by nearly about 80% of the world population, primarily in developing countries for primary health care (Camboj, 2000). It has been reported that there has been an alarming increase in number of diseases and disorders caused by synthetic drugs prompting a switch over to traditional herbal medicine (Ghule and Patil, 2001). Ayurveda is a traditional Indian Medicinal System practiced for thousands of years and has described several drugs from indigenous plant sources in the treatment of bronchial asthma and allergic disorders (Charaka, 1949). The polyherbal formulations described in Ayurveda have been the basis of treatment of various human diseases. Selection of scientific and systematic approach for the biological evaluation of herbal formulations based on their use in the traditional systems of medicine forms the basis for an ideal approach in the development of new drugs from plants.

In the light of above background, the present study aimed at evaluation of a polyherbal formulation for the possible anti-asthmatic action using experimental animals.

Materials and Methods

Chemicals and Equipments
Trypsin and egg albumin were purchased from Rakesh Chemicals, India. Dexamethasone was obtained from Suvik Pharmaceutical Private Limited, India. Curcuminoids, Vasicine and Solasodine were procured from Avance Phytochemical Ltd, Ahmedabad, India while Piperine was obtained from Amsar Pvt Ltd, Indore, India. Saline (0.9 % m/V NaCl solution) and phosphate buffered saline (pH 7.2) (8 g NaCl, 0.2 g KCl, 1.44 g Na₂HPO₄· 2H₂O and 0.24 g KH₂PO₄ in 1 L of distilled water) was used. All the chemicals were of analytical grade.