

ABSTRACT

(Diploma theasis)

Bronchoprotective effect evaluation of potential drugs

Respiratory diseases (asthma, CHOPN) has been held for many years the focus of doctors and lay people, and since their incidence is constantly increasing, especially in the younger pediatric population, is therefore an important potential drug development in this field. Asthma and CHOPN are inflammatory diseases of the respiratory tract, which plays an important role in many cells and their mediators. Among the drugs used in treatment of diseases of respiratory system include many drugs from different therapeutic groups. The group of bronchodilators include, parasympholytics and beta2-agonists and methylxantin derivatives (theophylline). Other groups used to treat respiratory tract are inflammatory substances (glucocorticoids and preventive imunodrugs) antileukotriens and antihistamines. Bronchoprotective effect have also antitussives and expectorants.

The goal of my work was both to participate in establishing the method of isolated trachea, which is used to identify new potential bronchodilators relax, and on this model provide a relaxing activity of the standard drug theophylline. In vitro methodology isolated trachea, we used the apparatus for isolated organs (Multi-chamber tissue bath system) with evaluation software and used as samples of the trachea Wistar rats, we obtained data for a DRC curve of theophylline, we assembled using GraphPad Prism . For the initial contraction, we used carbachol, and then we have added the following concentrations of theophylline (10^{-7} , 10^{-6} , 10^{-5} , 10^{-4} , 5×10^{-4} , 7.5×10^{-4} , 10^{-3} , 5×10^{-3} , 7.5×10^{-3} , 10^{-2} M). Then we calculated the exact value ED50 - ED50 = 2477 ± 66 micromol and get the values that will be used as a standard for comparing the effects of new potential Anti-asthmatics (eg. being tested derivatives of alkaloids from the plant *Adhatoda vasica*).

Of the many studies on isolated trachea result that theophylline is the most widely used standard to induce maximum bronchodilation.