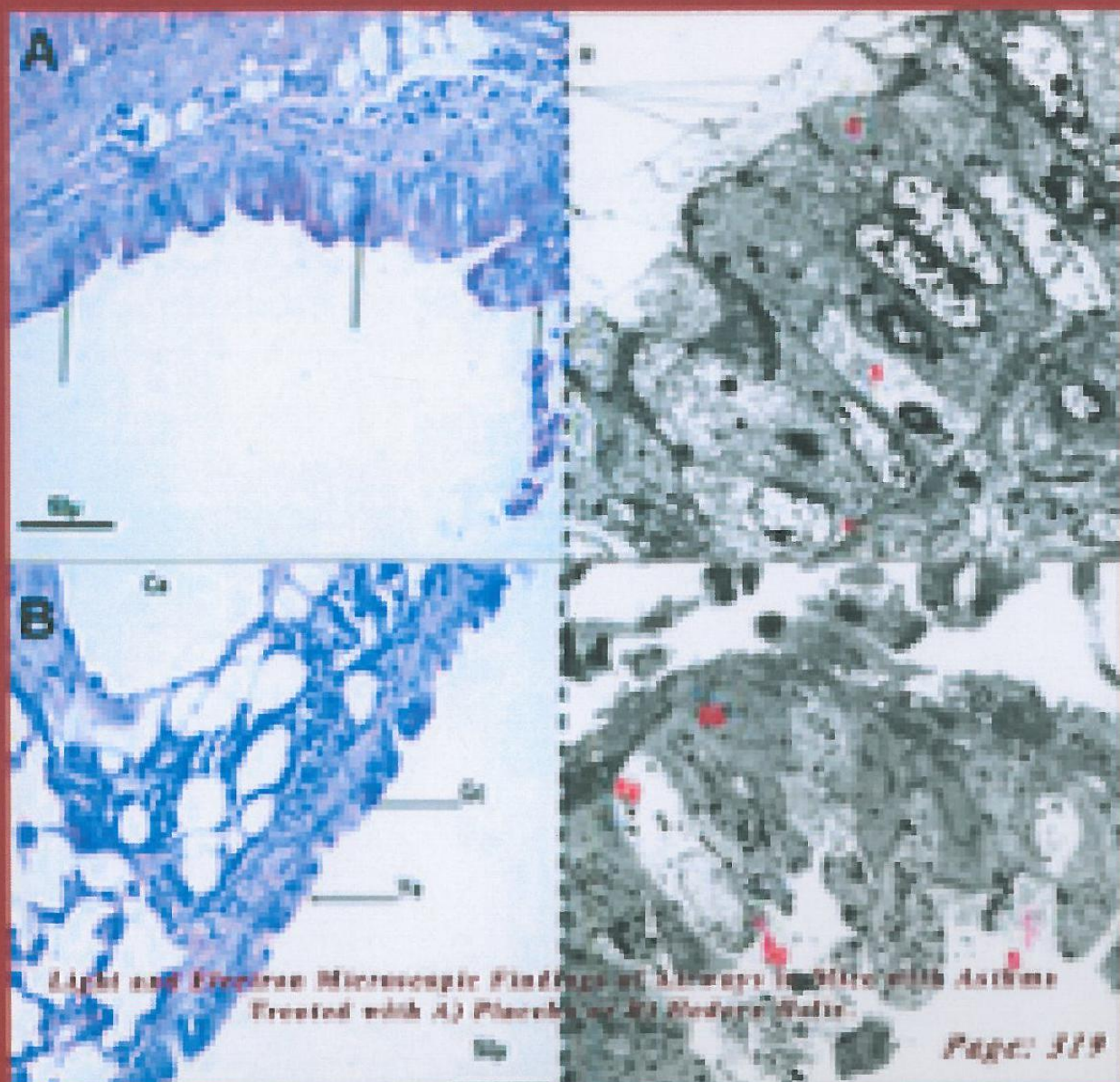


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## Effects of MnTnHex-2-PyP on Lung Antioxidant Defence System in Asthma Mice Model

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### ABSTRACT

We aimed to study the MnTnHex-2-PyP effect on some markers of lung antioxidant defence system in mice asthma model.

The study was carried out on 28 C<sub>57</sub>B1/6 mice divided into four treatment groups: group 1 – controls; group 2 – injected and inhaled with ovalbumin; group 3 – treated with MnTnHex-2-PyP and inhaled with phosphate buffered saline; group 4 – injected with ovalbumin and MnTnHex-2-PyP but also inhaled with ovalbumin. On days 24, 25 and 26, mice from groups 1 and 2 were inhaled with PBS for 30 min, and those from groups 2 and 4 were given a 1% ovalbumin solution. One hour before inhalation, and 12 hours later the animals from groups 1 and 2 were injected *i.p.* with 100 µl PBS, and those from groups 3 and 4 received a 100 µl MnTnHex-2-PyP solution in PBS, containing 0,05mg/kg. The animals were killed by exsanguination 48 hours after the last inhalation for obtaining a lung homogenate.

The activities of superoxide dismutase, catalase, glutathione peroxidase and the non-protein sulphhydryl group content in the lung homogenate were investigated. Ovalbumin decreased the activities of superoxide dismutase ( $p=0.01$ ), catalase ( $p=0.002$ ), glutathione peroxidase and non-protein sulphhydryl groups content ( $p<0.001$ ) in comparison to controls. In group 4 (ovalbumin and MnTnHex-2-PyP) the activities of superoxide dismutase ( $p=0.044$ ), catalase ( $p=0.045$ ), glutathione peroxidase ( $p=0.002$ ), and the non-protein sulphhydryl groups content ( $p<0.001$ ) were significantly increased compared to ovalbumin (group 2).

MnTnHex-2-PyP restored the activities of basic enzymes in the lung antioxidant defence system in ovalbumin-induced asthma mice model, 48 hours after the last nebulization.

**Keywords:** Antioxidants; Asthma; MnTnHex-2-PyP

### INTRODUCTION

Asthma is a serious medical and social problem. This chronic inflammatory disease primarily of the

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