

## ABSTRACT

### Demonstration of antihistamine properties with an extract from garden slugs (*Diplosolenodes occidentalis*).

Audrey Shivrani Jacob

The use of folklore remedies for treatment of illnesses in Jamaica is quite common. Most of these remedies are derived from plants, but occasionally animal materials are used. The Jamaican garden slug (*Diplosolenodes occidentalis*) is one animal source from which a folklore remedy for treating bronchial asthma is derived. However, although there have been anecdotal claims of the effectiveness of the slug materials against bronchial asthma, no scientific evidence is available to support these claims. It was therefore the objective of this study to investigate the potential of slug material to relieve the bronchoconstrictor symptom that characterizes asthma as well as the allergic response that can trigger an asthmatic attack in susceptible subjects.

The materials studied were prepared as extracts (AST-1) derived from parched and ground slugs. Bronchoconstrictor effect was produced by acetylcholine and histamine on the guinea pig tracheal muscle preparation. Both of these contractile agents are known to contribute to tracheobronchial contraction, but histamine is a major mediator that is involved in triggering some types of asthmatic attack. The crude AST-1 was used to investigate the anti-histamine effect of this slug preparation. Chemical analyses involving TLC, IR Spectroscopy, proton and carbon NMR indicated that two compounds were

present in the semi-pure AST-1 extract. A carboxylic functional group is present in one or both of these compounds.

When the semi-pure AST-1 extract was tested against histamine-induced contractile tension of the guinea pig tracheal muscle preparation, it produced a dose-dependent inhibition of contractile tension. The semi-pure extract also inhibited contractile tension produced by selective H<sub>1</sub> stimulation of the tracheal muscle preparation with HTMT dimaleate (400µg). However, no effect was demonstrated against the selective H<sub>2</sub> agonist, dimaprit dihydrochloride (30µg), since this agent did not contract the guinea pig tracheal muscle.

The therapeutic potential of this antihistamine effect of the semi-pure AST-1 was evaluated in ovalbumin sensitised guinea pigs. In these animals, the cutaneous responses due to intradermal injection of ovalbumin as well as histamine were suppressed by intraperitoneal injection of semi-pure AST-1. These results suggest that AST-1, derived from the Jamaican garden slug, has antihistamine effects which could contribute to suppression of bronchial asthmatic attack as claimed by folklore practice in Jamaica. This effect could also be exploited for its therapeutic potential against cutaneous allergic responses.

**Key Words:** Slug, Jamaica, Antihistamine, Trachea, cutaneous allergic response