

PRELIMINARY COMMUNICATION

A new antibiotic ?

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IN HONG KONG the Chinese herbalist dispenses extracts which he prepares from local plants, in the treatment of a variety of ailments. During the course of an inquiry into the biochemical basis for the alleged therapeutic action of the constituent alkaloids of *Melodinus suaveolens* (*Apocynaceae*), a chance observation led us to consider the possibility that the alkaloids of this plant may possess antibiotic properties.

When previously infected with the micro-organism *Staphylococcus aureus* (Heatley strain), the young immature rat was afforded protection from the lethal effect of the micro-organism by the injection of the alkaloidal mixture at dosages varying between 4 and 8 mg/kg body weight. The alkaloids were toxic to the young rat only when the dosage reached the high level of 350 mg/kg body weight. In the older, mature rat even this high dosage was well tolerated.

Experiments *in vitro* on six micro-organisms revealed that the alkaloids have pronounced anti-bacterial characteristics and from measurements of oxygen uptake by *Staphylococcus aureus* it has been deduced that the anti-bacterial activity of the alkaloids is bactericidal and not bacteriostatic. The minimal bactericidal concentration (MBC) and the maximal survival time (MST) for the micro-organisms which were plated out on infusion agar are as follows:

	MBC (μ g)	MST (hr)
<i>Staphylococcus aureus</i>	125	2
<i>Escherichia coli</i>	125	16
<i>Pseudomonas aeruginosa</i>	250	8
<i>Shigella dysenteriae</i>	250	8
<i>Salmonella typhi</i>	700	16
<i>Aerobacter aerogenes</i>	700	16.5

The marked potency of the alkaloids in suppressing microbial activity coupled with the low toxicity of the alkaloids in the rat suggests that the claim of the Chinese herbalist for a therapeutic action of the plant extract may have some validity.

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