

Bernice P. Bishop Museum, Honolulu, for reviewing the manuscript.

December 15, 1980.

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### REPORT ON THE OCCURRENCE OF BIOLUMINESCENCE IN THE EARTHWORM, LAMPITO (= MEGASCOLEX) MAURITII.

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BIOLUMINESCENCE in earthworms has been reported in *Octochaetus*, *Eisenia*, *Diplocardia* (Cormier)<sup>1</sup>; *Spenceriella*, *Fletcherodrilus*, *Pontodrilus* (Jamierson and Wampler)<sup>2</sup> and *Diplotrema* (Dyne)<sup>3</sup>. The present observation forms the first report of bioluminescence in the earthworm, *Lampito* (= *Megascolex*) *mauritii*. The greenish light exhibited by L. (= M.) *mauritii* is noticed in the coelomic fluid within a matter of seconds after discharge, on sufficient irritation by a 4 volt battery substitute. Addition of hydrogen peroxide (20 volumes) on the worm increases the light intensity manyfold. This luminescent system may be due to the luciferin-luciferase reaction as illustrated by Johnson *et al.*<sup>4</sup>.

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### INCREASED RATE OF MELANIZATION IN HAEMOLYMPH OF *DYSDERCUS CINGULATUS* F. AFTER TREATMENT WITH LEAF ALKALOID OF *CATHARANTHUS ROSEUS*

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It has been understood that haemolymph darkening in insects is due to the activity of tyrosinase initiated conversion of tyrosine to melanin<sup>1,2</sup>. Pathological conditions<sup>3</sup> and mechanical injury<sup>4</sup> can also induce tyrosinase activity and cause haemolymph melanization. Huist<sup>5</sup> reported increased haemolymph tyrosinase activity, as measured by *in vivo* melanization, in *Tenebrio molitor* and *Musca domestica* when treated with pyrethrins or DDT. Shorey<sup>6</sup> found that a carbamate, Zectran caused darkening of cabbage loopers and beet army worms. Fisher and Brady<sup>7</sup> observed that treatment of house crickets and American cockroaches with several insecticides increased the rate of melanization in haemolymph incubated with diphenol substrates. While studying the activity of *Catharanthus* alkaloids as insect sex sterilants, we also observed dark patches of pigmentation over the wings and body of the treated *D. cingulatus*. The present work was undertaken to see whether there is an enhanced rate in the melanization of insect haemolymph after treatment with leaf alkaloids of *Catharanthus roseus*.

The insects were reared in the insectary at a temperature of 27° ± 1° C. Cotton seeds, soaked the previous night, were provided as food. Freshly emerged adults were treated ventrally with leaf alkaloids. The total leaf-alkaloids were extracted from air-dried leaves with methane in a soxhlet apparatus, methanol removed and the residue treated with chloroform. The chloroform soluble portion was treated with 1% HCl and to the acid soluble portion 20% ammonia added (pH 9.0). The liberated total alkaloid was extracted with chloroform<sup>8</sup>. 182 g of leaf powder yielded 0.53 g of total leaf alkaloid. Topical applications