

SHORT COMMUNICATION

SESQUITERPENE ALKALOIDS OF *NUPHAR LUTEUM* SUBSP.  
*VARIEGATUM*

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*Plant.* *Nuphar luteum* subsp. *variegatum*.<sup>1</sup>

*Uses.* Medicinal. Ointments, extracts and powders prepared from roots have been used in the treatment of enteritis, gingivitis and various skin diseases.<sup>2</sup>

*Previous work.* Nuphenine<sup>3</sup> and 3-epinuphamine<sup>4</sup> from rhizomes; sesquiterpene alkaloids from a sister species *N. japonicum*.<sup>5</sup>

*Rhizome.* Extr. methanol; residue in aq. acid solution (pH 1), extr. ether. Aq. acid solution basified, extr. ether, extr.  $\text{CHCl}_3$ .

$\text{CHCl}_3$  extr. yielded nupharidine: m.p. and mixed m.p. 216–219°; i.r.

Ether extract on elution chromatography (alumina, ether–hexane, 5:95, and benzene) furnished deoxynupharidine, 7-epideoxynupharidine<sup>6</sup> (TLC, i.r.) and other unknown components. Continued elution (ether) gave nuphamine:  $[\alpha]_D^{25} -55.4^\circ$  (c., 1.22,  $\text{CHCl}_3$ ), reported<sup>7</sup>  $[\alpha]_D^{19} -60.4^\circ$ ; comparison i.r. and NMR<sup>7</sup> and m.s. Treatment of nuphamine with excess MeI and  $\text{NaHCO}_3$  in methanol gave quaternary *N*-methyl methiodide: m.p. 164–164.5°, reported<sup>7</sup> 164°.

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