

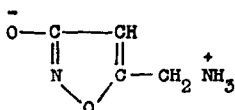
A NOVEL CONSTITUENT OF AMANITA MUSCARIA

K. Bowden and A.C. Drysdale

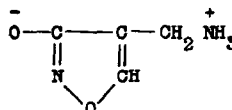
Smith Kline and French Research Institute, Welwyn Garden City, Herts.,  
England

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We wish to report the isolation from Amanita muscaria of an unusual natural product possessing the structure (I) or (II).



(I)



(II)

As far as we are aware, this is the first recorded instance of the isolation of a 5-hydroxyisoxazole from natural sources and we propose the name "agarin" for the substance. It was obtained by the following method.

Fresh plants were added to boiling water, cooled rapidly, filtered and the filtrates treated with DeAcidite FF (base) resin. The resin was washed with water and the compound eluted by means of acetic acid. The eluate was freeze-dried, dissolved in water and passed down a column of cellulose phosphate (Whatman P70). The substance gave a pale yellow band on the column which was eluted with N NH<sub>4</sub>OH and the eluate

freeze-dried. The semi-purified material was crystallized from alcohol or sublimed at  $120^{\circ}/10^{-4}$  mm to give the compound, m.p.  $172-174^{\circ}$  (decomp.).

The compound may be readily detected on a paper chromatogram by means of ninhydrin, the original yellow spot turning slowly purple.  $R_f = 0.26$  on Whatman No.1 using absolute alcohol: water (5:1 by vol.) as the developing solvent.

Mass-spectrographic analysis indicated the structure of the substance to be either (I) or (II) and this was supported by n.m.r. data. In  $D_2O$  a one proton peak occurred at  $\tau = 4.15$  (ring proton) and a two proton peak at  $\tau = 5.82$  ( $-CH_2\overset{\uparrow}{N}$  group). These chemical shifts favour structure (I) rather than (II).

It has been shown<sup>1</sup> that 5-hydroxyisoxasoles occur predominately as such rather than in the tautomeric isoxazolone form and are acidic. Incorporation of a basic side-chain into the molecule produces properties similar to those of an amino-acid, which we have found in our compound.

The synthesis of structures (I) and (II) is in progress.

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REFERENCE

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