

Short Communication

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Alkylation of 3-(Dimethyl Aminomethyl) Indole with Uracil

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The essential feature of the Mannich reaction is the replacement of the active hydrogen atom by an aminomethyl or substituted amino methyl group, as in case of gramine [1] where $N(CH_3)_2$ is replaced by aminogroup of uracil.

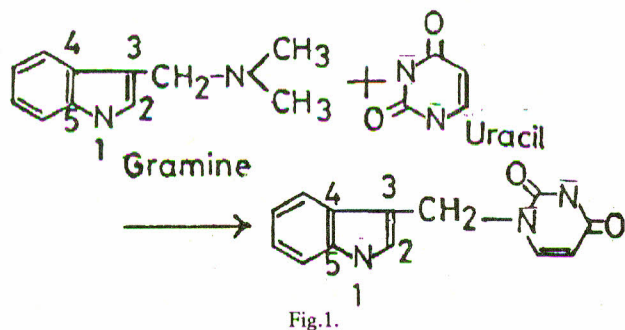
Kamal *et al.* [2]. reported some alkylation reactions of Mannich bases in aqueous medium for the synthesis of organic compounds utilizing indole [3]. They also reported the condensation of gramine with indole to yield di-indolyl-methane[4].

The Mannich base gramine is an important intermediate of indole and it has great contribution in pharmacological activity [5]. In the present alkylation study we used gramine, an intermediate derivative of indole [6], along with a pyrimidine base, uracil. Wiader *et al.* [7] carried out work of similar nature on the basis of chemical alkylation of nucleic acids uracil with pyridine.

Into 1.12 gm of uracil and 1.74 gm of gramine (prepared by following Synder *et al.* [8] method) was added 50 ml of (1:1) mixture of distilled water and alcohol, heated on water bath at 80-85° for 35 hrs with continuous checking of ammonia till no change in litmus paper occurred. The solvent material was distilled under vacuum at 50-60°. Cooled gummy mass so obtained was washed with 10ml cold acetone (20°) three times. Recrystallised with methanol at room temperature. Yield 68%.

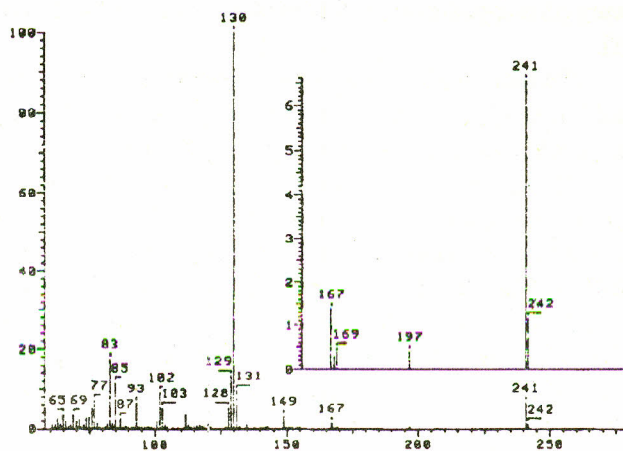
The pure crystallized compound was analysed for its melting point 232.5-233.5°. I.R., N.M.R. and E.I. mass spectra were done at H. E. J. Rresearch Institute of Chemistry, University of Karachi..

The purity of compound was checked by N.M.R., I. R. and mass spectra and the expected reaction is given in Fig. 1.



Its molecular weight as calculated is 241. In mass spectra (Fig. 2) the peak at 242 suggest the formation of M+1 molecule due to attachment of one hydrogen atom with nitrogen at position 1. With the removal of CONH from uracil moiety we get a peak at 197. Further removal of CO gives a peak at 169. In another break-up remaining uracil moiety is removed and we get a peak of gramine moiety at 130, confirming the alkylation at position 3.

On the basis of above data as identified with the help of I.R., N.M.R. and mass spectral studies, we may conclude that the expected reaction yields a compound that may be named as



3-(1- methyl uracil)-indole or 1-(3-methyl indole) uracil. Preferably 3-(1-methyl uracil) indole.

It is also evident that the above alkylation reaction has been reported for the first time.

Key words: Mannich base, Gramine, Pyrimidines, Uracil.

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