

alcohol which can be seen from the fact that the relative reaction rates of the potassium and the sodium derivative of ethyl acetoacetate are almost equal⁷.

In this connection it can be pointed out that a similar difference in reaction rates with different alkali derivatives of acetylacetone has been reported by the present author^{8,9}. This was at first considered as a pure solubility effect⁸, but further measurements showed that this is not the complete truth. Similar effects were observed in the methylation of ethyl α -cyanopropionate, ethyl α -carbethoxalylpropionate and ethyl acetoacetate with different alkali carbonates¹⁰, but these kinetic results were not accurate enough to give any precise information about the mechanism.

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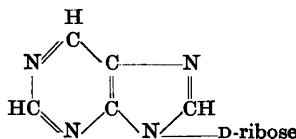
On the Structure of Nebularine

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Nebularine, a principle active against *Mycobacteria* and present in the mushroom *Agaricus (Clitocybe) nebularis*

Batsch., has been studied since 1945 by Löfgren *et al.*¹⁻³. — We have now succeeded in isolating the compound in a pure state, m.p. 181–182° (corr.). The elementary analysis shows that the compound has the empirical formula $C_{10}H_{12}N_4O_4$. The hydrolysis gave the components purine and D-ribose. This is the first time purine has been demonstrated to be a component of a natural product. From spectroscopical data it can be concluded with high probability that the D-ribose is connected at position 9 of the purine nucleus. It is therefore possible to state that nebularine is 9-(D-ribosyl)purine:



Nebularine has a high activity against different types of tubercle bacilli *in vitro* (no experiments performed *in vivo*). Thus for instance, the bacteriostatic activity of nebularine on *Mycobacterium avium* in Dorset substrate is 1 : 3 000 000 after 12 days and 1 : 2 000 000 after 30 days*. — We found it to retard strongly the growth of barley seedlings and furthermore experiments on *Allium* roots show C-mitosis and chromosome breaks in a dilution of 1 : 100 000**.

A full report will be published later.

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* Experiments performed by H. Hedström.

** Experiments performed by B. Kihlman.