Communications to the Editor

UDC 547.812.292:546.39.13

On Reaction between Dehydroacetic Acid and Ammonium Salts in Solution

It has already been reported in previous papers[1,2] that dehydroacetic acid (DHA) easily reacted with aqueous ammonia even under mild conditions to yield 3-(1-iminoethyl)-4-hydroxy-6-methyl-2-pyrone (DHA-imide). Taking interest in the behavior of DHA in the presence of ammonium salts in solution, interaction between DHA or DHA-Na and several organic and inorganic ammonium salts was examined. Ammonium salts used in the present experiment were as follows: Ammonium chloride, ammonium bromide, ammonium thiocyanate, ammonium nitrate, ammonium carbonate, ammonium sulfate, ammonium phosphate (dibasic), ammonium acetate, and ammonium citrate (dibasic). As a result, it was recognized that both DHA-Na and DHA itself also easily reacted with various ammonium salts in solution producing DHA-imide similarly as with the case of ammonia.

On the other hand, the toxicity of DHA and DHA-Na is relatively low and this finding of reactivity of DHA with ammonium ion prompted preliminary biological experiment. Dogs with Eck's fistula was used as the test animal and the effect of DHA-Na on the content of ammonia in their blood was chiefly observed. Measurement of ammonia content was carried out by the micro-diffusion method of Conway. It was observed from this preliminary experiment with considerable distinction that the injection of DHA-Na solution to dogs with experimental hyper-ammoniemia was useful in reducing their ammonia content in blood, especially when a small amount of dilute ammonium chloride solution was injected at the same time. The details of this work will be reported in the near future.

Pharmaceutical Institute,
Faculty of Medicine,
University of Kyushu.

Sadao Iguchi (井口定男)
Shigeru Goto (後藤 茂)
Kazuhito Hisatsune (久恒和仁)
Eiko Futagami (二神英子)

First Department of Surgery,
Faculty of Medicine,
University of Kyushu,
Katakasu, Fukuoka.

Hiroshi Miyake (三宅 博)
Junzo Iida (飯田順造)

April 22, 1959

1) S. Iguchi, *et al.*: Yakugaku Zasshi, **77**, 98(1957)
2) S. Iguchi, *et al.*: This Bulletin, **7**, 323(1959)