

Utilization of α -Ketoadipic Acid by Lysineless *Ophiostoma* Mutants

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Recently Borsook *et al.*¹ found that lysine was degraded to α -aminoadipic acid, α -ketoadipic acid and glutaric acid in mammalian tissue. Mitchell and Houlahan² then found that one lysineless *Neurospora* mutant could utilize α -aminoadipic acid in the place of lysine whereas three other genetic types were unable to do so. α -Ketoadipic acid or glutaric acid did not support growth.

As mentioned in an earlier note³ we have also found that a number of the lysineless *Ophiostoma* mutants isolated by Fries⁵ can utilize α -aminoadipic acid.

We now wish to report that the growth of a number of these mutants also can be supported by α -ketoadipic acid as shown by the following data.

Table 1. Growth response of *Ophiostoma* mutant 1320.

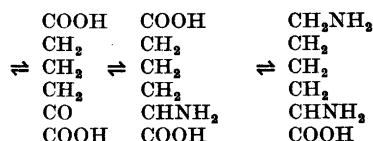
Addition to 25 ml basal medium (millimole)	Mg dry weight of mold after three weeks	
0	0,	0
0.002 L-lysine	11,	12
0.020 L-lysine	99,	102
0.020 D, α -aminoadipic acid	27,	29
0.020 α -ketoadipic acid	27,	9
0.050 " "	52,	54
0.100 " "	76,	74
0.020 glutaric acid	0	

The technic used has been described by Bergström and Sjöbeck⁴.

α -Ketoadipic acid was prepared according to Gault⁶ except that the intermediate trimethyl-2-oxaloglutarate was decomposed by a milder method *i. e.* heated in 4 *N* hydrochloric acid 45 minutes on the water bath. After recrystallization from ether or acetone-ether, the α -ketoadipic acid melted at 123–125°.

$C_6H_8O_5$
Calc. C 44.98 H 5.04 Eq.wt. 80.0
Found » 44.95, 45.05 » 5.00, 5.16 » » 79.3

These results thus lend further support to the assumption that lysine can be formed or degraded in different types of organisms according to the general scheme.



In different organisms the synthesis can be blocked at different points due to the lack of a specific enzyme.

A full report will appear in *Physiologia Plantarum*.

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