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Deamination in virus-infected plants
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Deamination in Virus-infected Plants

BONCQUET[1] noticed increased production of ammonia in curly top of beets and in tobacco mosaic and traced it to the presence of denitrifying organisms occurring in association with the diseased plants. Jodidi and co-workers observed similar increase in spinach blight[2], spinach mosaic[3] and cabbage mosaic[4] and attributed it to denitrification since there was diminution in total nitrogen. The latter authors indicated the possible formation of hydroxy acids, but did not study the related acid metabolism.

In the course of an inquiry on the mechanism of increased formation of ammonia in spiked sandal, I noted distinct increase in hydroxy acids, especially malic, in the earlier stages. In the more advanced condition, succinic acid was found to be present in the diseased tissues while it was entirely absent from the healthy ones. These observations having suggested the presence of an active deaminase in infected plants, a series of quantitative studies were carried out, adopting the method of Kisch[5].

The following were some of the results obtained:

Deaminase activity of healthy and spiked sandal.

Time in hours	Ammonia (in c.c. *N*/50) produced by 1 gm. of leaf powder		Carbon dioxide (in c.c. *N*/50) produced by 1 gm. of leaf powder	
	Healthy	Spiked	Healthy	Spiked
1	0·2	0·8	0·8	1·4
4	0·5	2·7	2·1	4·7
8	0·8	5·8	3·4	9·6
14	1·2	9·2	5·1	16·8

It is clear from the above that the increased production of ammonia is due to greater oxidative deamination in the diseased tissues. Further work on these and other aspects is in progress and will be published shortly in the *Journal of the Indian Institute of Science*.

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[1] *J. Amer. Chem. Soc.*, **38**, 2572; 1916.
[2] *J. Agric. Res.*, **15**, 385; 1918.
[3] *J. Amer. Chem. Soc.*, **42**, 1061; 1920.
[4] *ibid.*, **42**, 1883; 1920.
[5] *Fermentforschung*, **13**, 433; 1932.