POST-INFECTION CHANGES IN ASCORBIC ACID CONTENTS OF 'AONLA' (*PHYLLANTHUS EMBLICA* L.) FRUITS CAUSED BY *ASPERGILLUS NIGER* VAN TIEGH.

'AONLA' has aroused good deal of interest among the Scientific workers because it is one of the richest natural source of Vitamin C (ascorbic acid). Biosynthesis of ascorbic acid in plants has been extensively reviewed by Mapson[1] as well as Isherwood and Mapson[2]. Recently many investigators have estimated the changes in quantities of ascorbic acid in infected fruits. It is, therefore, considered desirable to study the changes in vitamin C contents of 'aonla' fruits under pathogenesis.

The healthy fruits of 'aonla' of nearly the same age were inoculated with a single loopful of the spore suspension of *A. niger* containing about 100 spores per high power field of the microscope. The healthy fruits inoculated with the same amount of sterile distilled water served as the control. Both types of fruits were incubated at 25 ± 2° C for 14 days. On every alternate day, the extracts from healthy and diseased fruit tissues were prepared by crushing 5 g of the fruit tissues in 25 ml of 5% metaphosphoric acid in a ground glass homogenizer and the contents were filtered. The residue was washed twice with 10 ml of 5% metaphosphoric acid and the total volume of the filtrate was finally raised to 50 ml by adding the required amount of metaphosphoric acid. 10 ml of the filtrate was titrated against previously standardized solution of 2–6-dichlorophenol indophenol reagent recommended by Bessey and King[3]. The quantities of ascorbic acid in mg/100 g of the fruit tissue were calculated. The results are summarized in Table I, where the percentage decay on different days is indicated in brackets.

It is evident from Table I that with an increase in the incubation period there was a gradual decrease in the ascorbic acid contents of healthy as well as infected fruits of 'aonla'. The percentage losses in infected fruits was 84·2 after 14 days of incubation while corresponding loss in healthy fruits was only 41·1. Similar decline in ascorbic acid was obtained by Singh and Tandon[4] in Guava fruits infected with *Aspergillus niger*. It is evident, from the present investigation, that the losses in ascorbic acid contents were directly proportional to the percentage of rot in the fruits.

Comparatively rapid decline in ascorbic acid in the infected tissue may be due to increased respiration rate under pathogenesis as observed in many fungi including powdery mildews and rusts, etc., by Samborski and Shaw[5], Daly *et al.*[6] as well as Bunshnell and Allen[7]. The decline in ascorbic acid may also be due to the production of suitable

TABLE I

Post-infection changes in ascorbic acid content (in mg/100 g in the pulp) of Healthy and infected 'aonla' fruits

Fruits	Ascorbic Acid contents								% loss in ascorbic acid after 14 days of incubation
	Days of incubation								
	0	2	4	6	8	10	12	14	
Healthy (Control)	570·2	528·8 (No decay in any case)	496·7	459·2	428·1	388·5	353·7	335·5	41·1
Infected		495·2	424·1	384·2	339·31	212·5	140·32	90·1	84·2
		(1·4)	(5·2)	(12·1)	(26·5)	(41·5)	(64·5)	(8·2)	

ascorbic acid degrading enzymes either by the pathogen or by host pathogen interactions.

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