



## Comparative Strategy of Biochemical Changes in Mildew Infected *Coriandrum Sativum* Linn From Bhojpur Bihar

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**Abstract:** *Coriandrum sativum* belongs to family Apiaceae. It is a species of Bihar and it is cultivated for several purposes such as medicinal, cooking and cosmetics. This plant is highly aromatic and has multiple use in food and in other industry. The powdery mildew disease alters the normal metabolism which is expressed by virtue of the changes. The present study was aimed to investigate some biochemical strategy of mildew infected *Coriandrum sativum* Linn. of Bhojpur District (Bihar). This study shows the comparative value of (i) % protein (ii) Ascorbic acid mg / 100 g (iii) phenols. In severe infection the average value of protein, Ascorbic acid and phenols are 5.68%, 6.704 mg/ 100 g and 739.93 microgram/ g respectively.

**Key Words:** *Erysiphae Polygoni D.C, protein, Coriandrum sativum Linn, Phenols, Ascorbic acid.*

### I. INTRODUCTION

*Coriandrum sativum* Linn provides two types of herbal raw material, fruits & leaves. The mycelium of *Erysiphae polygoni* D.C has superficial (ectoparasite) branched hyphae with short uninucleate cells. This disease not only decline the physiological efficiency of plant but also alters the normal metabolism. The authors report about the comparative strategy of biochemical changes in mildew infected *Coriandrum sativum* Linn of District Bhojpur, Bihar.

### II. MATERIAL AND METHODS

The crop of *Coriandrum sativum* Linn. were observed in ten population (i) Estimation of protein & soluble nitrogen were estimated by the Microkjedahl method using Markham – still distillation apparatus both the proteinaceous and soluble nitrogen were individually estimated according to the method recently suggested by Jamaluddin et al (1977). Proteinaceous Nitrogen can be calculated by the following formula.

$$(T - B) \times N \times 10 \times 1.4$$

$$\% \text{ Nitrogen} = \frac{\text{-----}}{28 \times S}$$

T = Titration reading of the sample

B = Blank reading (by using sucrose)

S = Amount of sample taken in g

N = Normality of HCL (N/28)

To obtain the % of protein the Nitrogen value are multiplied by the factor 6.25. (ii) Estimation of Ascorbic acid was estimated by as per method suggested by Mahadevan (1986). (iii) Estimation of Phenols was estimated by as per method suggested by Mahadevan.

### III. RESULTS AND DISCUSSION

The healthy plant of *Coriandrum sativum* Linn. lead an average value of protein 7.3 %. In mild infections this was 5.89 % in average while in severe this came down to 5.68 %. Host Nitrogen increases sometimes (Fric 1964; Bushnell 1967). Powdery mildew fungi take up & utilize amino acids. Despite this increase the total protein value is lowered in infected ones (Sharma et al 1962; Singh & Saksena 1983). Ascorbic acid plays an important role in the metabolism of plants. It occurs as L – Ascorbic acid and its oxidized form dehydroascorbic acid. In healthy population its level was constant of about 9mg/100g of fresh weight. Loss of 12 % in the infected plants. Infection of plant induces Phenolic changes (Mahadevan 1966). In healthy population, Phenol were at average of 739.9 ug / g of fresh weight. They showed a decrease of 3.93 & 13.60 % in mild as well as in severe infection respectively. Phenol may accumulate also in diseased tissue (Saw and Samborski, 1956).

Table 1: Comparative strategy of biochemical changes in mildew infected *Coriandrum sativum* Linn from District Bhojpur, Bihar

TABLE-01

Sl. No	Population Number	Proteins (%)			Total Sugars ug/g of fresh weight			Ascorbic Acid mg 100 g			Total Phenols ug/g. of fresh weigh		
		Healthy	Mild Infection	Severe Infection	Healthy	Mild Infection	Severe Infection	Healthy	Mild Infection	Severe Infection	Healthy	Mild Infection	Severe Infection
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	BGYP-1	7.2	6.9	5.65	1180	1100	1020	9.0	8.1	6.1	635	700.0	737.5
2	BGYP-2	7.2	6.87	5.83	1210	1080.3	1018.4	9.0	7.9	6.72	609.6	698.39	740.3
3	BGYP-3	7.2	6.93	5.92	1197.8	1093.5	996.5	9.0	7.97	7.01	613.39	696.93	735.6
4	BGYP-4	7.2	6.91	5.46	1225.5	1079.4	1023.4	9.0	8.21	6.93	665.3	702.3	739.6
5	BGYJ-5	7.5	6.82	5.62	1175.8	1105.2	979.50	9.0	8.3	6.69	659.7	703.10	740.30
6	BGYJ-6	7.4	6.8	5.57	1190.5	1079.8	1013.6	9.0	7.89	5.89	659.7	703.1	740.3
7	BGYJ-7	7.2	6.79	5.69	1185.7	1092.7	1018.5	9.0	8.1	6.32	637.8	711.5	743.2
8	BGYK-8	7.5	6.85	5.73	1190.8	1096.3	989.7	9.0	8.25	7.21	625.31	709.3	741.8
9	BGYK-9	7.3	6.92	5.7	11.80	1087.5	989.7	9.0	8.27	7.20	639.2	710.8	742.3
10	BGYK-10	7.3	6.87	5.69	1180.00	1087.3	1020.5	9.0	7.92	6.97	639.2	710.8	739.9

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