

## Short Communication

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# EFFECT OF DIFFERENT LEVELS OF NPK ON THE DEVELOPMENT AND PRODUCTION OF PERITHECIA OF POWDERY MILDEW (*SPHAEROTHECA FULIGINIA* SCHLECHT) POLL.

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*Lagenaria leucantha* and *Citrullus vulgaris* exhibited difference in the development of powdery mildew and its perfect stage, when raised under different concentrations of nitrogen, phosphorus and potassium.

**Key Words:** Long Ashton Solution, Nitrogen, Phosphorus, Potassium.

Severity and development of Powdery mildew is positively correlated with plant vigour soil and other factors which promote plant vigour (Arnaud and Arnaud, 1931; Smith and Blair, 1950).

Spinks (1913), Schaffnit *et al.* (1930), Trelease and Trelease (1928) and Mansson (1955) found that low nitrogen and high potassium reduced the development of powdery mildew. Cole (1964, 1966) on the other hand, reported that plants grown in water-culture fortified with all the elements were more susceptible to *Erysiphe cichoracearum* than those grown in which the ratio of potassium and nitrogen was low. Laiback (1930) and Homma (1937) reported that low nutritive conditions of host supported the

development of perithecia. According to Arya and Ghemawat (1953) the formation of ascospores of *Erysiphe graminis* was facilitated by submerging abortive perithecia in dilute nitric acid, sucrose and potassium nitrate.

The seedlings of *Lagenaria leucantha* var. ribbed long green and round and *Citrullus vulgaris* var. sugar sweet, were raised singly in 25 cm. glazed-Crocks containing acid leached, washed and moistened yamuna sand. Long Ashton solution (30 ml) adjusted for different concentrations of nitrogen, phosphorus and potassium was added daily (Hewitt, 1966).

Table 1. The appearance of powdery mildew (*S. fuliginea*) and production of perithecia on of *L. leucantha* and *C. vulgaris* as influenced by different levels of NPK.

Levels of NPK	Time in days for the appearance of Disease				Perithecia		*Disease rating after 36 days		
	L. leu. Var ribbed long green	C. vul. Var round sweet green	L. leu. Var sugar long green	C. vul. Var ribbed sweet	L. leu. Var round long	C. vul. Var sugar sweet	L. leu. Var ribbed	C. vul. Var round	C. vul. Var sugar
NPK	5	6	7	-	-	-	2	2	2
-N	4	4	4	20	14	-	4	4	4
½ N	4	4	5	29	18	-	3	3	3
2N	5	5	5	-	24	-	1	1	1
-P	4	4	5	-	14	-	4	4	4
½ P	4	5	5	-	21	-	3	3	3
2P	4	5	6	-	24	-	1	1	1
-K	4	5	5	-	16	-	4	4	4
½ K	4	4	5	-	19	-	3	3	3
2K	6	5	5	34	28	-	1	1	1

Highly susceptible = 4, Susceptible = 3, Moderately susceptible = 2, Resistant = 1, Highly resistant = 0

Seedlings grown in the above nutrients were inoculated with conidia of *Sphaerotheca fuliginea* obtained from *Lagenaria leucantha*. Intensity of the disease was recorded twenty days after inoculation and graded as highly susceptible (4), Susceptible (3), moderately susceptible (2), resistant (1) and highly resistant (0).

Infected plants were also examined for the production of perithecia. Intensity of perithecial production was also noted. Equal number of seedlings were left uninoculated to serve as control.

It is evident from the table I, that mildew developed on *Lagenaria leucantha* var. ribbed long green, round and on *Citrullus vulgaris* var. sugar sweet, irrespective of their nutritive status, the infection rating differed on plants receiving different treatments. The disease was severe on plants lacking either of the three elements. The infection rating in each case was 4, while on plants receiving normal or double the normal dose of nutrients was 2 and 1 respectively. Perithecia were produced only on plants which received no nitrogen or on plants receiving twice the normal dose of potassium. Deficiency of either nitrogen, phosphorus, or potassium predisposed both the plants to the Pathogen.

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