side. The rate at pH 7·2 and 7·4 was almost similar to that of pH 7·6. The pH optimum agrees well with the pH of the extract of the leaves. The maximum absorption of chloroplast at pH 7·6 may be related to the photosynthetic electron transport activity in normal plants. Similar influence of hydrogen ion concentration on CO_2 fixation was reported by Werden *et al*[13].

The change of temperature also changes the rate of photosynthetic electron transport. Figure 1 shows the reduction of DPIP by chloroplast is maximum at 30° C. It is greatly reduced at temperatures beyond 34° C and less than 28° C.

Figure 2 shows the inhibition of photosynthetic electron transport due to different carbohydrate metabolites (0·0125 M) and the maximum inhibition was found to be due to citrate. The other metabolites inhibit the reaction in the following order: citrate, tartrate, sucrose and fructose. Neales and Incoll[5] have reported the accumulation of sucrose in leaves when the rate of photosynthetic reaction is reduced. An increase in the concentration of sugars in the leaves was also reported after the removal of fruits by Moss[6]. The inhibition of chloroplast activity due to different carbohydrate metabolites may regulate the photosynthetic electron transport reaction.

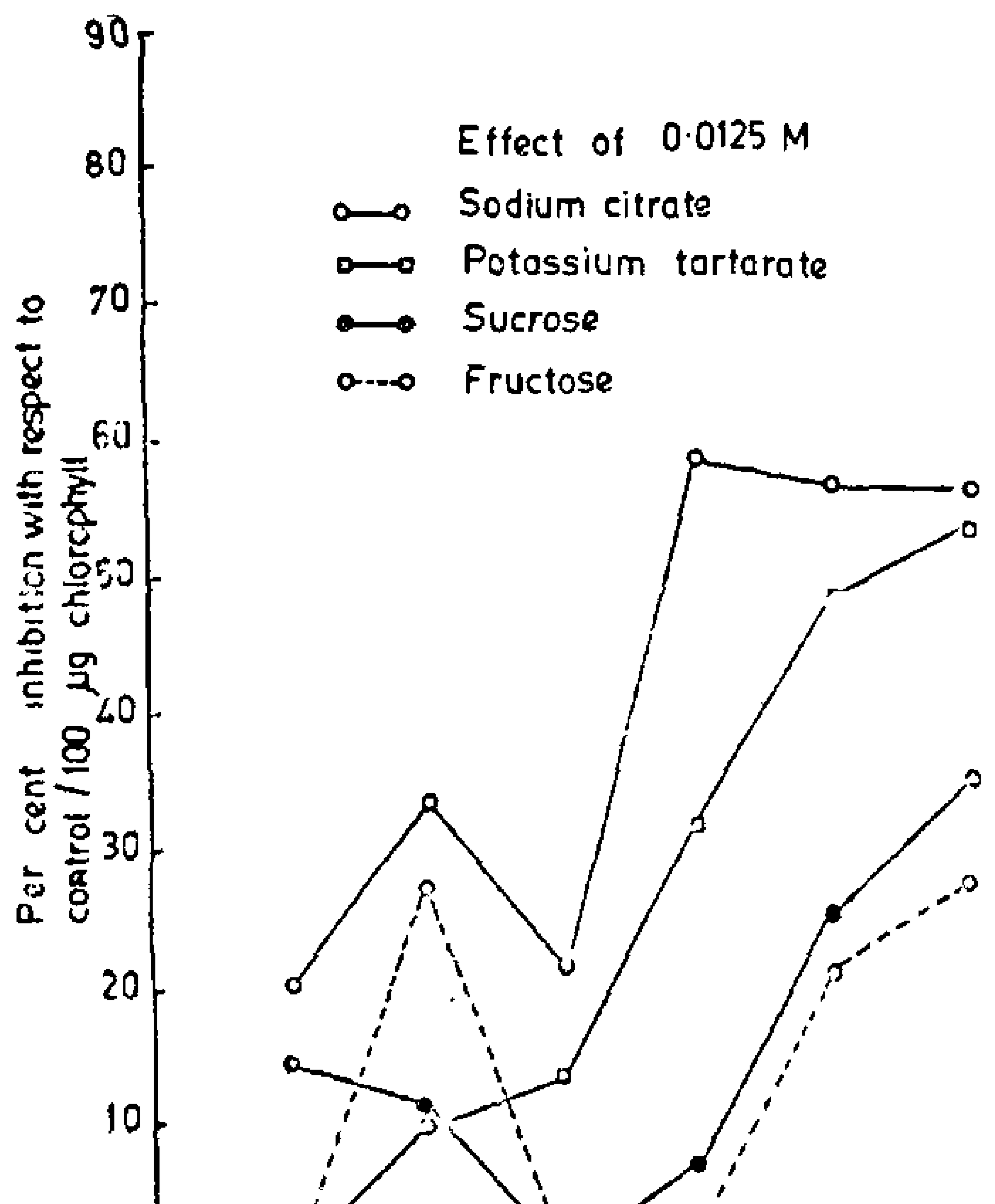

FIG. 2. Effect of different carbohydrate metabolites (0·0125 M) on the reduction of 2,6-dichlorophenol-indophenol by isolated chloroplast from Spinach.

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LEPIDIUM SATIVUM, LINN.—A NEW HOST RECORD FOR *ALTERNARIA ALTERNATA* (FR.) KEISSLER

A SEVERE leaf spot disease is observed at Almora on the leaves of *Lepidium sativum*, Linn. which later on infects the whole plant. The disease first makes its appearance as small oval discoloured lesions which become irregular in shape with increase in size and brown in colour. A light yellow zone surrounds the spot. Lowermost leaves of the plants along irrigation channels receive the infection first. Later on similar symptoms are also observed on the stem and seed coat. The diseased portions of the stem and seed are sterilized (with 0·1% $HgCl_2$ solution) and plated on Potato dextrose agar medium. It is identified as *Alternaria alternata*, (Fr.) Keissler (= *Alternaria tenuis*, Nees) by comparing their characteristics with the stock culture maintained at the Department and also comparing with the type description[1-3].

The mycelium from the host tissue was hyaline, septate and branched. The Conidiophores are usually unbranched, emerge through the stomata and similar to mycelium in colour. In culture, mycelium is abundant and forms distinct concentric rings. Hyphae hyaline, septate, 4–6 microns wide. Conidiophores are distributed over the colony. They were unbranched, erect, brown, septate and measured 3–6 microns wide and 30·0 to 80·2 microns in length. The conidia were brown to dark brown, black at maturity, smooth-walled with 3-4 transverse septa. The terminal cell of the conidia was beakless or having a very short beak in few cases. The conidia were borne in chains and 23–30 × 9·2–12·7 microns in size.

A perusal of the literature[2,4,5] shows that *Lepidium sativum*, Linn., is a new host record for the fungus. The disease is principally seed-borne but the infected plant debris may provide inocula for the recurrence of the disease.

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DISTRIBUTION PATTERN OF ONION THRIPS (*THRIPS TABACI* LIND.)

Introduction

THE distribution pattern of insect populations gives an insight to formulate management strategies for control measures as well as to study the biological nature of insects. The dispersion pattern of insects may be random, clumping or regular. If the insect populations are dispersed in a random manner, the distribution pattern of insect counts shall approximate to Poisson distribution. The equality of mean and variance is an important characteristic of Poisson distribution. Generally under natural conditions, insect populations are not independent of each other as pointed out by Taylor[1]. It may be due to response to physical factors like light or temperature, reproduction behaviour of insect populations and interaction with other species. For such populations, random distribution shall not give adequate representation of insect population. The departure from random to clumping of insects is called contagion, where the presence of an insect in a unit increases the probability of occurrence of other insects on that unit. The negative binomial distribution may give adequate representation of such populations[2-6]. The variance greater than mean is an important characteristic of the negative binomial distribution. If dispersion of insect population is regular, the data will approximate to binomial distribution.

For the present study, distribution behaviour of the onion thrips (*Thrips tabaci* Lind.) has been investigated. These minute insects lacerate plant tissues and suck the sap from leaves. In the case of severe infestation, the entire crop gives whitish appearance with dry tips and thin leaves.

Materials and Methods

Onion crop was planted on December 6, 1978 in forty plots of size 5 × 3 sq. m. at Indian Institute of Horticultural Research, Hessaraghatta. A random sample of 10 plants was selected from each plot and observations were recorded after two months of transplantation. Morisita's[7-8] index of dispersion was used to predict aggregation nature of population. The negative binomial distribution was fitted to the data, which is explained by two parameters, *i.e.*, the mean (m) and exponent (k) called dispersion parameter and the expected frequency of zero count is given as

$$P(o) = \left(1 + \frac{m}{k}\right)^{-k}$$

and chance of observing any positive count 'x' is given by

$$P(x) = P(o)\left(\frac{k + x - 1}{x}\right)\left(\frac{m}{m + k}\right)^x$$

The dispersion parameter k is estimated by the formula

$$k = \frac{\bar{x}^2}{s^2 - \bar{x}}$$

where, $\bar{x}$ and s^2 are sample mean and variance respectively.