normal flowering and pod formation. Smoothness of pods, testa colour and shape of the seeds were similar in mutants and the parent.

The miniature mutants bred true and no variation was observed in M_2. These were hybridized with the parent JL 24 to ascertain the genetic nature of the mutation. F_1 was similar to JL 24. In F_2, 149 normal and 40 miniature plants were obtained conforming to a ratio of 3:1 respectively ($X^2 = 1.48$ with P value between 0.2 and 0.3). It indicated that this character is controlled by a single recessive gene. The miniature phenotype and small leaf character in groundnut were reported to be recessive and controlled monogenically[5,6]. Cytological and genetical analyses thus ruled out the possibility of dominant mutation and chromosomal aberration; the occurrence of point mutation of recessive nature was established.

Since colchicine acts both as a mutagen and as a chromosome doubling agent, the occurrence of this true breeding mutation in M_1 can be explained owing to somatic reduction of the chromosomes after or perhaps concurrent with mutagenic effects and subsequent restoration of the diploid chromosome number. Similar explanation has been advanced in case of sorghum[1,2] and flax[3]. Occurrence of this phenomenon indicates the possible use of colchicine for early realisation of recessive mutations in groundnut.

Thanks are due to Dr P. T. Shukla, Professor and Head, Agricultural Botany, Gujarat Agricultural University, Junagadh for helpful discussion.

19 April 1984

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A NOTE ON EUTROPHIC CHARACTERISTICS OF TWO FRESHWATER BODIES OF KURUKSHETRA, INDIA.

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THE term eutrophication denotes nutrient enrichment of water which may be caused owing to any kind of pollution particularly the release of agricultural and sewage effluents into a water body. A detailed physico-chemical examination of water could demonstrate such a condition; however, in a situation lacking these facilities, the importance of biological species as indicator of eutrophication has also been realised[1-3]. The present note is a study of trophic status in two freshwater bodies, *viz.*, Jyotisar and Nabhkamal, of Kurukshetra.

A regular and periodical sampling of water was taken up during March 1977–June 1979 so as to collect information on population ecology of dominant zooplankton species in relation to conductivity, temperature, alkalinity, pH and dissolved oxygen[4]. Conductivity, which is a measure of the total amount of dissolved electrolytes in the water, was found to vary between 270 and 540 μmhos/cm in Jyotisar and between 451 and 1560 μmhos/cm in Nabhkamal during the course of the present investigation. Dunn[5], while differentiating the trophic levels of Danish lakes classified the lakes having conductivity greater than 200 μmhos/cm as clearly eutrophic and those with values less than 200 μmhos/cm as oligotrophic. If Dunn's criterion is applied to Nabhkamal and Jyotisar, the former falls in the category of high eutrophy while the latter remains comparatively at the lower stage of eutrophy. Methyl orange alkalinity of water exhibited wide range in Nabhkamal (173 to 470 ppm) than in Jyotisar (84 to 116 ppm) confirming the advance stage of eutrophy in the former tank as per observations of Tucker[6] who postulated that greater fluctuations in alkalinity are expected in water only with high organic nutrients. The range of temperature and pH fluctuations was almost identical in the two freshwater bodies (11.5°C ± 1 – 32.5°C, 7.4–9.1).

Rotifers were the most and least abundant component of zooplankton in Nabhkamal and Jyotisar, respectively. In the two successive years of study, rotifers contributed 58.22% and 46.88%, cladocerans 22.24% and 25.94% and copepods 19.54% and

27.18% of the total zooplankton in Nabhkamal whereas, in Jyotisar, cladocerans (58.87% and 70.10%) were followed by copepods (25.58% and 23.50%) and rotifers (15.55% and 6.40%). In Jyotisar, 3 species of cladocerans (*Ceriodaphnia cornuta, Diphanosoma excisum, Daphnia lumholtzi*), 2 species of copepods (*Neodiaptomus kamakhiae, Cyclops* sp), one species of rotifer (*Brachionus calyciflorus*) were dominant during the different parts of the year whereas, in Nabhkamal, 5 species of cladocerans (*C. cornuta, D. excisum, Moina brachiata, Daphnia similis* and *D. lumholtzi*), 1 species of copepod (*Cyclops* spp and 9 species of rotifers (*Brachionus calyciflorus, B. caudatus, B. falcatus, B. urceolaris, B. bidentatus, Asplanchna brightwelli, Keratella tropica, Filinia longiseta* and *Lecinularia recemovata*) were dominant. Rotifers have been recognised as indicators of eutrophication[1-3]. The presence of dominant species of rotifers, viz., *Brachionus caudatus, B. falcatus, B. urceolaris, B. bidentatus, Asplanchna brightwelli, Keratella tropica, Filinia longiseta* and *Lecinularia recemovata* in Nabhkamal (and these being absent in Jyotisar) are probably indicators of advanced stage of eutrophy in Nabhkamal. *Neodiaptomus kamakhiae*, being dominant in Jyotisar, was found to be rare in Nabhkamal. A decrease in population of diaptomids with increasing eutrophy has already been observed[7,8]. Nayar[9] also reported the absence of calanoid copepods in several shallow ponds of Pilani. The annual mean number of total zooplankton was higher in Nabhkamal (527.5/lit and 220.2/lit) than in Jyotisar (83.4/lit and 63.7/lit) in the two succeeding years of study, which probably could be due to differences in their trophic status.

The author is grateful to Prof. A. K. Dattagupta for his able guidance and to ICMR, New Delhi for financial support.

18 July 1984; Revised 22 August 1984

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ASCORBIGEN IN THE COMPOUND EYE OF THE HOUSEFLY, *MUSCA DOMESTICA*

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IN biological system, ascorbic acid occurs not only in free form but also in bound form or ascorbigen from which free ascorbic acid is released on heating[1]. It is also known that there is some enzymic utilization of ascorbic acid in the tissue *i.e.* a portion of ascorbic acid is utilized by some oxidizing enzymes[2]. Further it has been reported that in living system, ascorbic acid forms some complex with macromolecules[3].

Bound forms of ascorbic acid have been reported in various plant and animal tissues and some very important roles have been adduced to them[4,5]. The present communication reports the occurrence of bound form of ascorbic acid or ascorbigen (ASG) and ascorbic acid-macro-molecule complex (AA-MM) in the compound eye of the housefly, *Musca domestica*, besides the occurrence of free form (AA).

Histogical preparation of the compound eye, when treated with 5% silver nitrate containing two drops of acetic acid per ml at 56°C in dark and then with 5% Sodium thiosulphate for 30 min[6] showed the presence of ascorbic acid positive granules in the rhabdom.

The eyes, after separating from head, were homogenized with 1–2 ml. of Co_2-saturated distilled water as well as a pinch of purified silica sand and free and bound forms of ascorbic acid in the eye-homogenate were determined colorimetrically following the method of Chinoy *et al*[7] (table 1).

The major source of error in studying ascorbic acid concentration in biological system, *i.e.* the auto-oxidation of ascorbic acid has been checked by using Co_2-saturated glass-distilled water for extraction as well as for preparing standard ascorbic acid solution. The instability of the dye, 2,6,-dichlorophenol indophenol at low pH, which also causes error in the estimation of ascorbic acid[8], was overcome by stabilizing the dye with Citric-NaOH buffer at pH 3.6. The loss of ascorbic acid due to hydrolysis with meta-