(Kundu *et al.* 1971)[1], the shootfly larvae were also parasitised by *Ganaspis* sp. (Eucoilidae), *Psilus* sp. (Diapriidae), *Hemiptarsenus* sp. (Eulophidae) and *Diaulinopsis* sp. (Eulophidae).

The observation on the percentage of parasitism taken during different periods showed that except for 2% parasitism by *Ganaspis* sp. in the month of April, 1975, these parasites were recorded only in the infested seedlings collected during the months of September and October. Even in these months the extent of parasitism was rather low and ranged from 1 to 4%. The two parasites recorded earlier, *viz. Aprostocetus* sp. and *Callitula bipartitus* were reared out in the month of August also. The percentage parasitism of *Aprostocetus* sp. was found to be higher than any other parasite and ranged from 4% (October) to 15% (September).

Perusal of literature showed that these parasites have been recorded from a number of dipterous hosts from different parts of the world. Kerrich (1962)[2] reported *Hemiptarsenus semialbiclavus* (Gir.) parasitizing Agromyzid leaf miners of vegetable crops in Africa, while *Psilus* sp. has been recorded as pupal parasite of *Pholeomyia comans* (Diptera: Milichiidae) by Mosev and Neff (1972)[3]. *Diaulinopsis* sp. was rared from *Agromyza pusilla* Mg. (Diptera: Agromyzidae) from North America, U.S.A. (Thompson 1955)[4]. *Eucoila (Ganaspis) haywardi.* Blanch. has been used for the control of fruit flies, *Anasterpha* spp. (Diptera: Tephritidae) in Argentina (Turica 1968)[5]. The sorghum shootfly (*A. soccata*) has not so far been recorded as host of these parasites and thus constitutes a new host record. These four parasites also constitute first record from India.

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CYANOPHAGE AC-1 INFECTING THE BLUE GREEN ALGA *ANACYSTIS NIDULANS*

AS–1 TYPE cyanophage which infects the unicellular algae, *Anacystis nidulans* and *Synechococcus cedrorum* was first characterized by Safferman *et al*[1]. It is the largest BGA phage so far examined with a head diameter of 90 nm. and tail-head ratio of 3 to 1, based on a tail length of 243·5 nm. It has a rigid tail with a contractile sheath and a base plate with tail pins. In the present report, a new phage type infecting *Anacystis nidulans* 14011 and *Chroococcus minor* ARM was isolated from a waste stabilization pond inside the campus of the Indian Agricultural Research Institute, New Delhi[2].

The phage formed clear plaques of 4–6 mm after 10 days of incubation. Several blue green algal species of *Nostoc, Anabaena, Tolypothrix, Aulosira* and *Spirulina,* the green alga *Chlorella vulgaris* and the bacteria, *Azotobacter chroococcum, Rhizobium* spp. and *Rhodopseudomonas capsulatus* were also tested for susceptibility to this phage, but none of them was found susceptible.

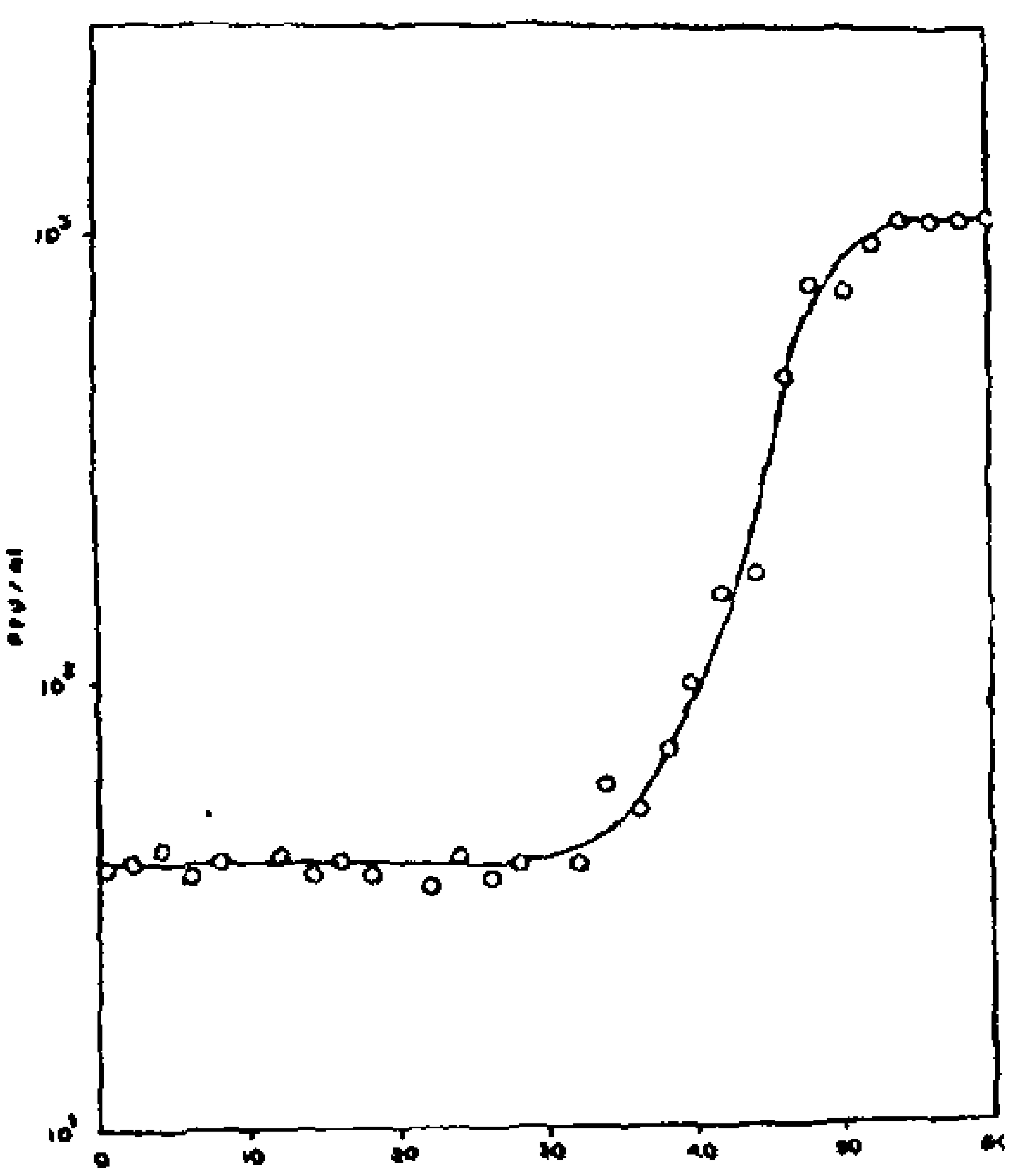

FIG. 1. One step growth curve of AC–1 cyanophage.

The phage titer was stable in its own lysate and was rapidly inactivated at high temperatures. The adsorption of the phage followed the kinetics of a first order reaction and about 95% of the phage particles was adsorbed to the host cells after 40 min in stationary cultures. The one step growth curve of the phage resembled that of SM–1[3], with a latent period of 30 h followed by a rise period of 20 h (Fig. 1), with an average burst size of about 30 PFU/infected cell.

Electron micrographs of the preparation revealed phage-like particles with a polyhedral head and a tail. The polyhedral head was 62·5 nm diameter with a tail head ratio of 1 : 3, based on the tail length of 25 nm (Fig. 2). The short non-contractile tail of AC–1 differentiates it from AS–1 and brings it closer to SM–1[4].

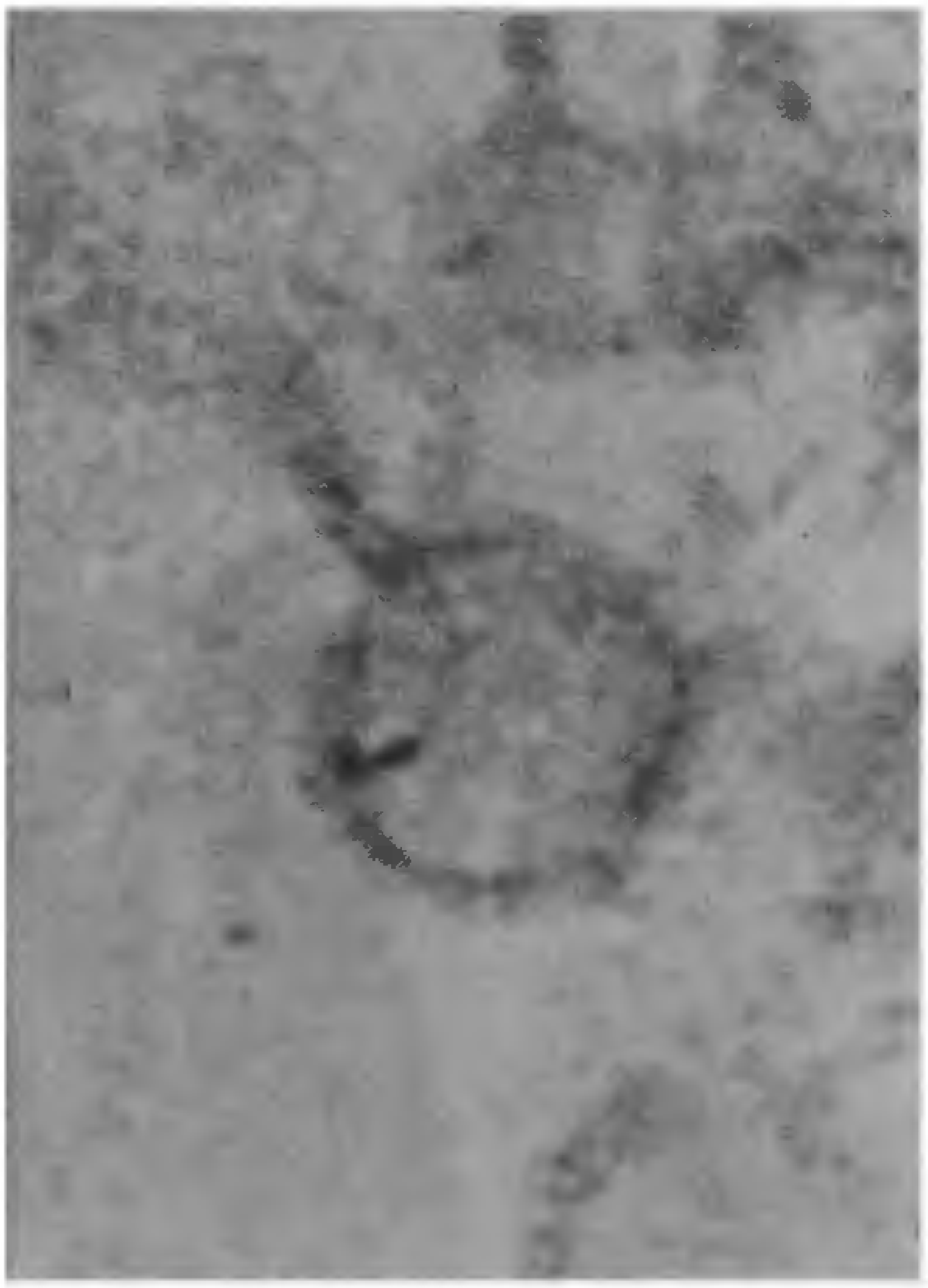

FIG. 2. AC–1 cyanophage particles (× 394,000).

AS–1 infects *Anacystis* and *Synechococcus*[1]. SM–1 infects *Synechococcus* and *Microcystis*[5] and the present AC–1 infects *Anacystis* and *Chroococcus*. If the taxonomic merger of *Anacystis* with *Synechococcus* is accepted as suggested by Padmaja and Desikachary[6], the genus *Synechococcus* appears to have three types of phages (SM–1, AS–1 and AC–1) infecting it.

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ASSOCIATION OF SOME LEAF CHARACTERS WITH PHOTOSYNTHESIS IN RICE

PHOTOSYNTHETIC process as a limiting factor for crop yield is receiving considerable attention in recent years. Differences in photosynthetic rates among cultivars of various crop species including rice have been reported[1-3]. But a correlation between photosynthetic rate per unit leaf area and economic yield has not always been found within a species[4]. However, the information on variability in photosynthetic rate is necessary for selection of photosynthetically efficient genotypes, as a first step, if enhanced photosynthesis can influence the crop yield[2]. Leaf characters associated with photosynthetic rates of cultivars are of obvious importance for rapid measurement in field selection programme[1]. In the present study, the association of some of the leaf characters with photosynthetic rate in rice was assessed with a view to define more appropriate indices for selection.

Cultivars belonging to early and late maturity groups of tall *indicas* as well as high yielding group (HYV) were studied with 16 entries in each group. Leaf chlorophyll content[5], stomatal frequency[6] and size[7], interveinal distance[8], specific leaf weight (SLW)[9] and total leaf nitrogen content per unit area (N_{LA})[3] were assessed at peak vegetative stage using standard procedures. Photosynthetic rates (Po) were computed as described elsewhere[10], with the exception that excised single leaves were fed with radioactive carbon ($Na_2{}^{14}CO_3$, specific activity of 47·6 mCi.mM^{-1}). The cpm values were converted to mg CO_2.dm^{-2}hr^{-1} adopting the formula suggested by Naylor and Teare[11].

Considerable variation in all the above characters including Po was observed. Among the varieties tested, *Ptb* 10, *Co*.13 (early), *Peta*, *Mahsuri* (late); *Padma* and *Cauvery* (HYV) recorded high Po (about 50 mg).