cystic cleft, follicular cyst and multilocular cysts. Rathke's cysts are remnants of hypophysial cleft and are situated in the zone between pars distalis and the neural lobe[5,6,10–12]. Typical Rathke's cysts are mainly present in the forms in which the hypophysial cleft tends to obliterate, *e.g.* in the higher primates[12–14] and some artiodactyla[15]. Hanström[9] observed that in such cysts the distal wall is made up of cells from the pars distalis and the proximal wall is of the pars intermedia. Although the cyst of *H. flaviviridis* can be classified as Rathke's cyst and is situated in the caudal lobe of the PD, its boundary is not contributed either by the PD or by the PI. The cyst wall is made up of a single, at some places double or even triple layers of flattened, cuboidal or columner cells superimposed with a connective tissue layer. Thus, there is a definite boundary between the cyst wall and component cells of the PD.

As the content of such cysts would react with mucoid stains, they are suggested to be mucopolysaccharides[6]. They are also known to give PAS positive reaction[16]. In *H. flaviviridis* the cyst is turgid with PAS positive coagulum. Intra-cellular PAS positive droplets and globules were not iced on the epithelial cells lining the cyst. This shows the actively secreting nature of those cells. Although the presence of ciliated cysts has been reported in mammalian cysts, in the present study the cilia could not be seen among most of the cells. However, a few ciliated cells could be located under high magnification. It is difficult to say whether the cilia are absent as special techniques to demonstrate cilia are not adopted.

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EFFECT OF HONEY ON THE GROWTH OF VERO CELLS

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INCORPORATION of natural substances in synthetic media is well known[1–3]. (In India, honey is used as a vehicle in the Ayurvedic medicine for a long time). Natural honey contains sugars, like dextrose, levulose, maltose and sucrose, nutrients like Vitamin A, B complex, folic acid, nicotinic acid, pantothenic acid, riboflavin, biotin, pyridoxin, thymine and enzymes such as invertase, diastase, inulase and phosphatase[4,5].

The present communication reports the effect of honey on Vero cells. Vero cells[6] were maintained on the minimum essential medium (MEM) with Earles base (90%) and goat serum (GS) 10%. Honey from *Terminalia chebula* (Hirda)[7] from Mahableshwar was used. Different concentrations (10%, 5%, 2.5%, 1.2% (v/v) in MEM (Earles) with 10% goat serum) were added to Vero cells 1.2×10^6/milk dilution bottle. The culture bottles were stoppered and incubated at 37°C. The cell attachment and the growth rate were studied at the above concentrations of honey.

The culture bottles containing 1.2% honey in the medium were like control cultures while higher concentrations were toxic to the cells. The studies also revealed that higher the concentration of honey the lower was the cell attachment rate. Vero cells grown in 1.2% honey remained healthy, morphologically normal and survived upto 3 weeks with no change of the medium, whereas controls degenerated by the 10th day.

The growth rate studies supported the above observation. The control cells showed (figure 1) very short duration of lag and plateau phases whereas cells with 1% honey showed three days lag phase and 18 days plateau phase. When honey was reduced to 0.5%, 0.25% and 0.1%, the growth rate remained the same as the controls (figure 2). Replacement of MEM with Parker's[8] medium 199 further prolonged the plateau phase.

Effect of honey at different concentrations (10%, 5%, 2.5%, 1.2%) was also studied on other cell cultures (like HeLa, HEp-2, McCoy, PS, CHO, MFS-8, etc primary chick embryo fibroblasts and human erythrocyte cultures). It was found that 1% honey in the medium is optimum for these cells except chick embryo fibroblasts. For chick embryo fibroblasts 0.5% honey in the medium was optimum (unpublished data).

Prolongation of plateau phase of LM cells in suspension by supplementation of glucose was shown by Eidman and Merchant[9,10].

In conclusion the natural honey at the concentration of 1% in the medium helps to maintain the cells in healthy condition, prolongs the plateau phase and controls the cell proliferation.

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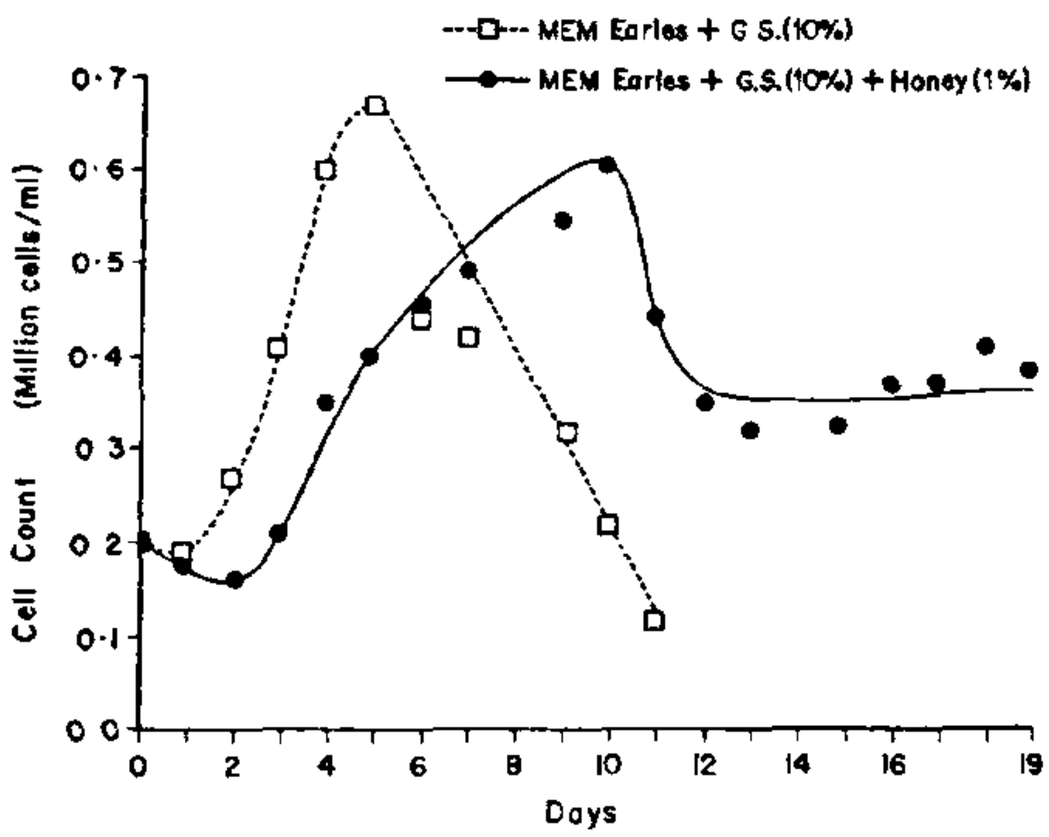

Figure 1. Growth rate of Vero cells in the presence and absence of one percent honey.

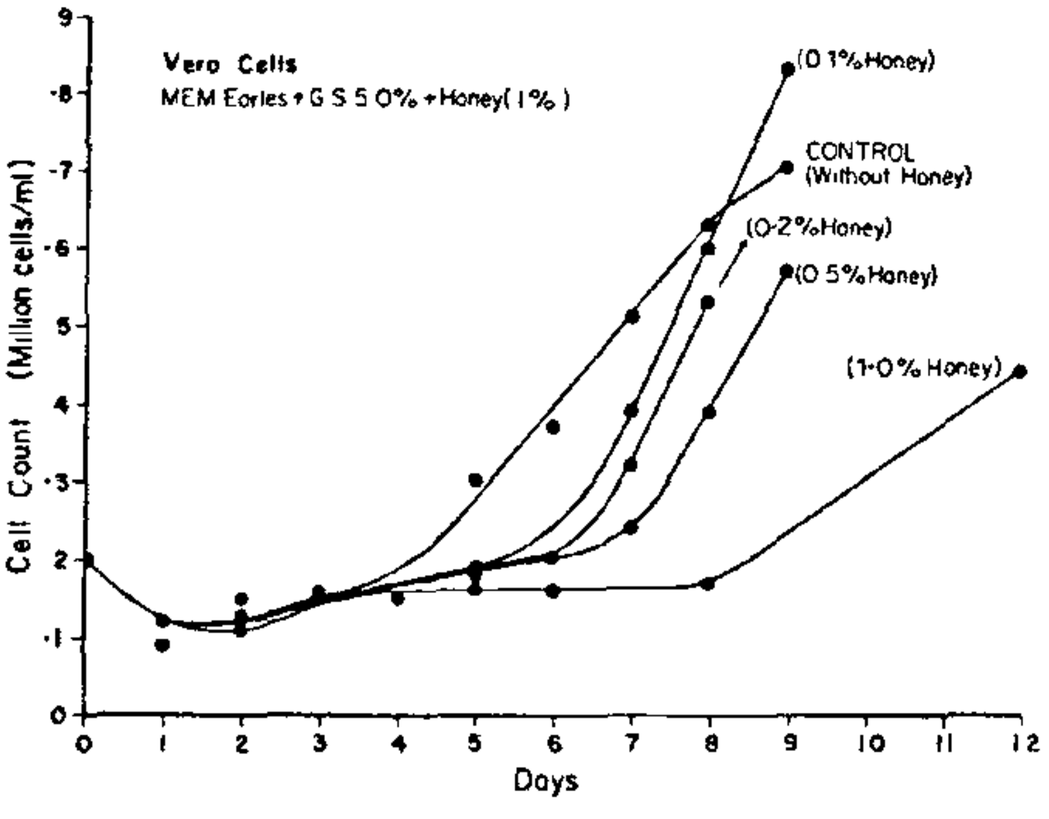

Figure 2. Effect of different concentrations of honey on growth rate of Vero cells.

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EFFECT OF ETHYL-METHANE SULPHONATE ON TISSUE CULTURE OF GARLIC (*ALLIUM SATIVUM* L.)

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TISSUE culture studies of *Allium sativum* L. (Garlic) have been carried out by several workers[1–4]. Karyological studies by Novák[7–9] show that variations may be possible in cultures. Since garlic does not reproduce sexually, it was important to induce variation through