The effects of each morphactin on pollen germination and tube growth were also not identical. A number of physical and chemical treatments on *A. curassavica* have shown that pollen germination and tube growth are two different aspects with different physicochemical requirements[10].

Studies with morphactins indicate that many of the effects could be explained, at least partly, in terms of their influence on auxin transport [11–13]. Morphactins were shown to affect polar auxin transport[14, 15], although the exact mode of this action was not clear. In some cases morphactins seem to block basipetal auxin transport without affecting acropetal transport[14–17]. However, in the present study both the morphactins used seem to affect even acropetal transport of auxin at higher concentrations.

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EFFECT OF ANTIBIOTICS ON THE GROWTH OF *HYPNEA VALENTIAE* (TURN.) MONT. (GIGARTINALES, RHODOPHYTA)

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THE Carrageenophyte of *Hypnea valentiae* (Turn.) Mont. was collected from Muttukadu (near Madras) and studied under laboratory conditions (26 ± 1°C, 1.5 lux illumination and 12/12 light-dark regime) in F medium[1]. Red algae growing under laboratory conditions are contaminated by diatoms and blue-green algae[2]. Growth of diatoms was suppressed by treating with 2 ppm GeO_2 in the basal medium for a week and then transferring the alga to fresh medium[3]. Blue-green algae growing on the marine red and brown algal cultures were eliminated by using antibiotics[4].

In the present investigation, an attempt is made to eliminate blue-green algal contaminants on *H. valentiae*. Benzyl penicillin at higher doses (4000 ppm) along with other antibiotics is reported to be toxic to the growth of cyanobacterium *Gloeocapsa* (*Gloeothece*) sp[5]. The alga *H. valentiae* was grown in basal medium with antibiotics at 4000 ppm of benzyl penicillin, 2000 ppm of chloramphenicol and 2000 ppm of streptomycin and exposed to light at different time intervals. After treatment, the alga was sub-cultured on a fresh medium and the growth characteristics recorded after two weeks (table 1). Blue-green algal contaminants were eliminated without inhibiting the growth of *H. valentiae* by exposing to light for one hour with 2000 ppm of chloramphenicol or streptomycin in the basal medium. Benzyl penicillin exerted an inhibitory effect equally on blue-green contaminants and *H. valentiae*. The mechanism by which it inhibits the growth of the organisms is not presently understood. The blue-green algae and *H. valentiae* showed better growth under 24 hr dark treatment of these antibiotic concentrations. Bacteria survived in all experiments.

To understand the effect of antibiotics on the growth of the alga, different concentrations of

Table 1 *Growth characteristics of H. valentiae*

Light min.	B. Peni. (4000 ppm)		Chloramhenicol (2000 ppm)		Streptomycin (2000 ppm)	
	Hypnea	BGA	*Hypnea*	BGA	*Hypnea*	BGA
30	+++	+++	+++	+	+++	+
60	++	++	+++	–	+++	–
90	+	+	++	–	++	–
120	–	–	+	–	+	–
150	–	–	–	–	–	–

BGA = Blue-green algae; +++ = Better growth; ++ = Poor growth; + = Stunted growth; – = Lethal.

chloramphenicol, streptomycin (5, 10, 50, 100, 500 and 1000 ppm) and benzyl penicillin (5, 10, 50, 100, 500, 1000, 2000 and 3000 ppm) were added to the basal medium. The inoculum consisted of 2 apical bits (each of 1 cm length) of *H. valentiae* in 10 ml of the medium. The plant bits inoculated in 1000 ppm chloramphenicol and streptomycin and 3000 ppm benzyl penicillin were bleached within a week and in the remaining concentrations they showed growth. At the end of the 20th day the alga showed decreased fresh weight in all concentrations when compared to control (without antibiotic) (figure 1).

Macroscopic red algae have been recently studied[6,7] under laboratory conditions and it is essential to eliminate the contaminating micro-organisms. Diatoms and blue-green algal contaminants were eliminated by treating the algae with GeO_2 and antibiotics respectively[3,4]. We found that blue-green algal contaminants of *H. valentiae* were removed by treating with antibiotics like chloramphenicol and streptomycin. On the other hand benzyl penicillin was not effective. However the medium amended with antibiotics affected plant growth.

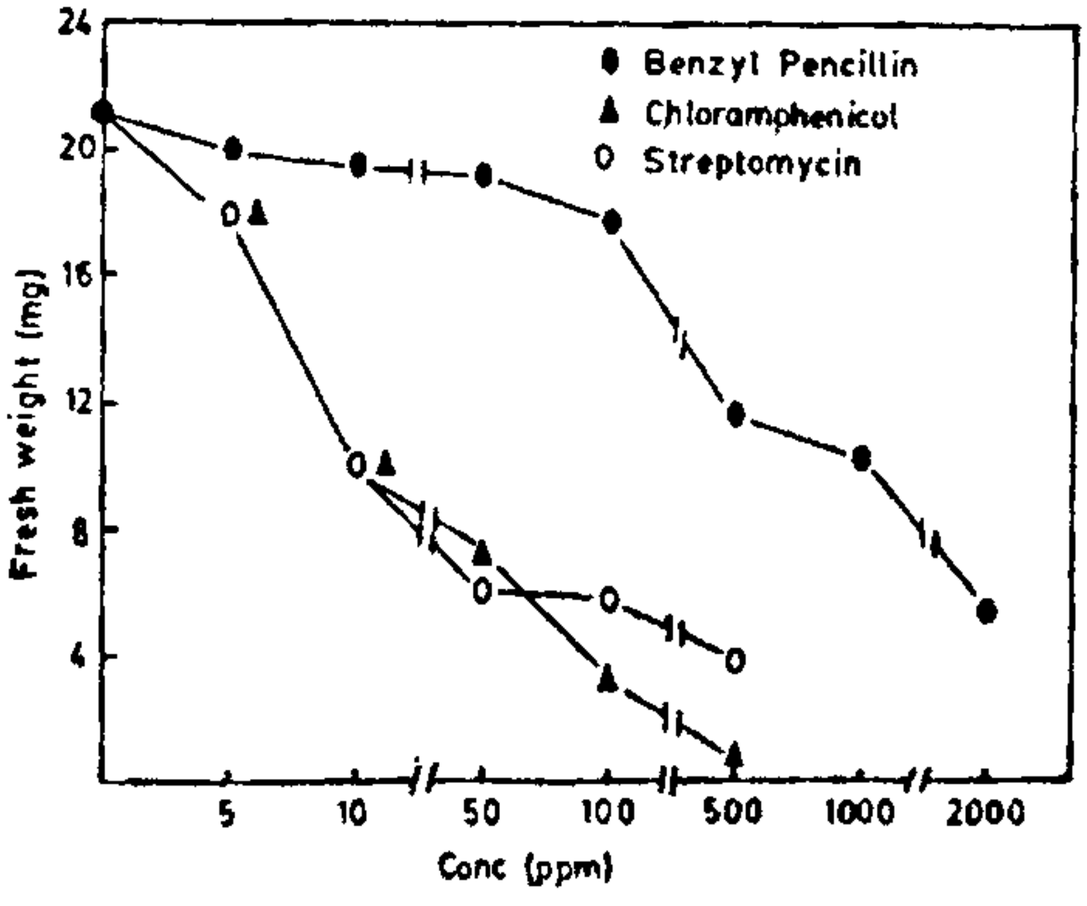

Figure 1. Fresh weight of *H. valentiae* at different concentrations of antibiotics (symbol on the axis represents control).

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NEW RUSTS FROM MANNANUR FOREST, ANDHRA PRADESH, INDIA

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MANNANUR forest is located in Achampet Taluk of Mahabubnagar District, Andhra Pradesh and lies between latitudes 16 and 16' 45' and longitude 78' and 79' 15'. River Krishna forms the southern and eastern boundary and river Dindi flows on the north eastern side. Mannanur forest is a tropical dry deciduous forest.