Figure 1. *Cassia sericea branch.*

Figure 2. Conspicuous colonies of *Cassia sericea* as seen in Dharwad city.

growth of the latter, and in course of time, the lands can be released from the clutches of the pernicious weed, Parthenium.

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Table 1. *Morphological differences between the two species of Cassia*

Character	*Cassia sericea*	*Cassia tora*
Leaf at first node	Bifoliate compound	Quadrifoliate compound
Leaf from 8th node onwards	Generally 8 or even 10 foliate compound	Generally 6 foliate compound
Number of fruits/node	Generally in pairs and sometimes only one	Generally 5–6 in cluster or sometimes 2–3
Pod length	10–15 cm	3–4 cm

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OBSERVATIONS ON MEIOBENTHOS FROM THE MANGALORE REGION [WEST COAST OF INDIA]

H. R. VENKATASWAMY REDDY and
V. HARIHARAN
College of Fisheries, Mangalore 575002, India.

THE benthic fauna is known to be of considerable importance in the marine food chain and are involved in the recycling of materials. At present only very little

Table 1 *Percentage distribution of meiobenthos in relation to sediment structure*

	Jan	Feb	Mar	Apr	Oct	Nov	Dec
Section 1							
Sand percentage	95.3	98.3	87.3	72.0	98.7	90.2	9.1
Silt-clay percentage	4.7	1.7	12.7	28.0	1.3	9.8	90.9
Protozoans	—	—	16.7	33.7	37.8	26.9	—
Nematodes	52.9	66.7	50.0	44.9	24.3	30.7	50.0
Copepods	—	—	—	—	8.1	15.4	—
Gastrotrichs	47.1	33.3	33.3	21.4	13.5	19.2	50.0
Others	—	—	—	—	18.3	8.2	—
Section 2							
Sand percentage	97.7	99.1	99.2	71.2	98.8	95.4	87.7
Silt-clay percentage	2.3	0.9	0.8	28.8	1.2	4.6	12.3
Protozoans	—	—	—	25.0	47.8	24.2	—
Nematodes	75.0	75.0	50.0	62.5	13.0	12.1	27.3
Copepods	—	—	—	—	4.4	3.0	—
Gastrotrichs	25.0	25.0	16.7	12.5	21.8	57.6	72.7
Others	—	—	33.3	—	13.0	3.1	—
Section 3							
Sand percentage	93.3	94.5	99.4	73.6	98.8	92.8	93.3
Silt-clay percentage	6.7	5.5	0.6	26.4	1.2	7.2	6.7
Protozans	—	—	—	9.3	50.0	12.5	—
Nematodes	60.0	66.7	66.7	70.7	16.7	18.7	45.5
Copepods	—	—	—	—	5.5	12.5	—
Gastrotrichs	40.0	33.3	33.3	20.0	11.1	50.0	55.5
Others	—	—	—	—	16.7	6.3	—

documented evidence exist describing the dynamic nature of the meiofaunal communities along the west coast of India[1, 2]. There is practically no information on the meiobenthic fauna (100–1000 μm size) of the Mangalore region. The present communication gives some information on the meiofauna from the shallow coastal regions off Mangalore.

Monthly sampling was done during Jan to Dec 1982 (except from May to Sept) in 3 stations at 10 metre depth. Sediment samples were collected using Petersen grab. Sea water ice technique[3] was used to separate the fauna. Meiofauna was sorted using a sieve (No. 72, mesh size 210 μ) and preserved in 5 % neutral formalin.

A small quantity of the sediment was air-dried and subjected to particle size analysis adopting the combined sieving and pipette method[4]. Higher percentage of sand fraction was recorded during the major part of the study (table 1). Generally, low percentage of silt and clay was recorded at all the stations.

Meiofaunal density varied from 28000 to 1,65000/ m^2. During premonsoon period (Feb–Apr) lower values were recorded and the meiofauna was dominated by nematodes and gastrotrichs. During the postmonsoon (Sept–Dec), nematodes, gastrotrichs and at few stations protozoans (ciliates and tintinids), polychaetes and chironemid larvae were recorded (table 1).

The benthic communities of the marine environment are known to be influenced by the texture of the sediment[5]. During the present observation nematodes were abundant, where the bottom was composed of higher percentage of sand[6]. Protozoans were abundant in almost all the stations during Sept and Oct with conspicuous absence during premonsoon months.

Percentage distribution of nematodes and gastrotrichs was high during the premonsoon (table 1). In the present study, the incidence of polychaetes was less, probably due to the predominance of sand fraction in the sediments.

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ANTIVIRAL ACTIVITY IN EXTRACTS OF *PHYLLANTHUS FRATERNUS* WEBST (P. NIRURI)

D. V. R. SAIGOPAL, V. SIVA PRASAD and P. SREENIVASULU*
Department of Botany, S. V. University, Tirupati 517 502, India.

MANY natural products are known for their antiviral activity. Highly potent inhibitors of plant viruses have been found to occur in different parts of a large number of plants[1]. But active agents have been characterized in only a few plant extracts. The active agents may be carbohydrates, proteins, glycoproteins, tannins or phenolic compounds. They may act by modifying the test plant susceptibility, competing with virus for entry points, inactivating the virus after combining with it, modifying the host metabolism and/or inhibiting the virus replication. The effect of *P. fraternus* leaf and root extracts on the infectivity of tobacco mosaic (TMV), peanut green mosaic (PGMV)[2] and tobacco ringspot viruses (TRSV)[3] are reported here. *P. fraternus* is known to be used in curing jaundice (viral disease), a human ailment.

TMV, PGMV and TRSV maintained inside the insect-proof wiremesh house by frequent sap inoculation on *Nicotiana tobacum* var. Harrison Special, *Arachis hypogaea* cv TMV-2 and *Vigna sinensis* cv local, respectively, were used in the present work. *Chenopodium amaranticolor* (5–6 leaf stage), *Phaseolus vulgaris* cv local and *V. sinensis* (last two at 2-primary leaf stage) were used as test plants for TMV, PGMV and TRSV, respectively. *P. fraternus* in earthen pots 30 cm dia and all the other plants were raised in earthen pots 15 cm dia containing garden soil. The virus inocula were prepared by grinding in 1 TMV infected tobacco leaf disc (1 cm dia)/5 ml cold 0.01 M, potassium phosphate buffer, pH 7.0 (PPB), 1 g PGMV infected groundnut leaves/10 ml PPB and 6 TRSV local lesions from cowpea/ml PPB in separate mortars. The extracts were passed through two layers of muslin cloth and then used as virus inocula.

Freshly harvested *P. fraternus* leaves and roots were ground separately by using 0.05 M potassium phosphate buffer, pH 7.5 (2 ml/g), and then squeezed through two layers of muslin cloth. To detect the antiviral activity, extracts were mixed separately with different virus inocula in equal amounts, incubated at room temperature for 10 min, and then the mixtures were inoculated by using separate muslin cloth pads on respective test plant leaves dusted with 600-mesh carborundum. The controls consisted of each virus mixed with equal volume of PPB. On separate sets of test plants the leaf and root extracts were applied with cloth pads to the test plant leaves either 24 hr before or 24 hr after virus inoculation. The pretreated plants were washed with distilled water and then inoculated with virus inocula.

For determining the dilution end point of the inhibitors, the extracts were diluted to 1 : 1, 1 : 2, 1 : 5, 1 : 10, 1 : 25 and 1 : 50 with extraction buffer, mixed with equal volumes of virus inocula separately, and then inoculated to the respective test plant leaves. For controls, the virus inocula were mixed with an equal volume of PPB instead of extracts.

To determine the thermal inactivation of the plant extracts, 5 ml of the extracts were kept at room temperature (25–37°C) and at 40–70°C at 5°C interval for 10 min, cooled, mixed with an equal volume of virus inocula and applied to the leaves of the respective test plants.

The percent inhibition was calculated using the formula $(C - T)/C \times 100$, where C is the number of lesions on the control plants and T on the treated plants.

Both leaf and root extracts of *P. fraternus* inhibited the infectivity of the 3 tested viruses but the percent inhibition varied with the virus and the extract (table 1). Both pre- and post-inoculation treatment of leaf and root extracts reduced the infectivity of PGMV almost to the same level, whereas the infectivity of other two viruses varied with the time of application of the inhibitor. Post-inoculation treatment of the inhibitor resulted in higher percent inhibition of TRSV. In general, leaf extract was more inhibitory than root extract, but root extract was most effective when mixed with TMV and PGMV inocula. Among the 3 types of inhibitor treatments, inhibitor mixed with the inoculum was more effective, indicating that inhibitor is probably acting by forming complexes with virus particles and/or at the sites of virus entry besides