

do not know what molecular mechanisms might underlie this kind of movement. It may be driven by a system similar to that responsible for gliding in flexibacteria<sup>7</sup> and many filamentous blue-green algae<sup>9</sup> but, for these movements, too, there is still no satisfactory explanation. Using a

somewhat more tedious isolation technique, Glaser and Pate<sup>10</sup> have obtained non-gliding mutants of a flexibacterium, *Cytophaga columnaris*. Comparative studies of such organisms may ultimately help us to elucidate cellular mechanisms underlying gliding motility.

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### Reduction in bean common mosaic virus (BCMV) infectivity vis-a-vis crude leaf extract of some higher plants

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**Summary.** Crude leaf extracts of 17 plants were tested for their antiviral activity against BCMV. An extract of *Azadirachta indica* A. Juss. was found to be most potent in reducing the infectivity of the virus.

Several workers have reported inhibitory activity of juices of several plants including Strawberry<sup>2</sup>, *Phytolacca esculenta*<sup>3</sup>, Tobacco leaves<sup>4</sup>, *Achyranthes aspera*, *Aloe barbadens*, *Capsicum frutescens* and *Carica papaya*<sup>5</sup> and various medicinal plants<sup>6</sup>. The present investigation is concerned with the antiviral activity of the crude leaf extracts of some higher plants.

Legumes are the best source of protein. During the survey of leguminous plants of Eastern U.P. (India), bean common mosaic virus (BCMV) was found to be most noxious. It was found to be perpetuated in cultivated plants viz. *Vigna sinensis* Roxb., *Phaseolus vulgaris* L., and certain other pulses including weeds like *Crotolaria striata* L. Due to the prevalent nature of the virus it was considered desirable to search for antiviral agents.

Cultures of BCMV were maintained in systemically infected *Vigna sinensis* L., in an insect-proof glass house. The inoculum was prepared by grinding 1 g of young diseased leaves in a mortar, and the juice was expressed by squeezing the pulp through muslin cloth, diluted 1:10 with distilled water and kept at 20 °C. The plant extracts were made by the same method, using leaves of different plants. The inhibitory effect of the crude leaf extracts was determined by comparing the infectivity of equal volumes of BCMV and distilled water (control) with equal volumes of BCMV and extract by the local lesion method. The mixtures were rubbed after 10 min of mixing on *Chenopodium amaranticolor* Coste et Reyn<sup>7</sup> (local lesion plant) leaves. 5 replicates were taken for each treatment. Each mixture was inoculated on 20 half-leaves and the half-leaves allotted to each treatment were distributed among plants so as to form a randomized block. Carborundum powder was dusted on leaves before inoculation and inoculation were made with a forefinger wet with inoculum. The results, showing reduced infectivity of BCMV after treatment with crude leaf extracts, are summarized in the table.

The results shown indicate that the infectivity of BCMV was reduced by 10 to 95% in different crude saps of plants. Maximum reduction in infection was observed with *Azadirachta indica* A. Juss. and minimum with *Erigeron molle* D. Don., *Leucas aspera* (Willd.) Spreng and *Lantana indica* Roxb.

Bean common mosaic virus: effect of crude leaf extracts on infectivity (test plant *Chenopodium amaranticolor*)

Plant species	Average No. of lesions	Reduced infectivity %
<i>Clerodendrum inerme</i> (L.) Gaertn.	20±0.05	0
<i>Xanthium strumarium</i> Linn.	20±0.08	0
<i>Putranjiva roxburghii</i> Wall.	20±0.09	0
<i>Erigeron molle</i> . D. Don.	18±0.15	10
<i>Eclipta alba</i> Hassk.	14±1.20	30
<i>Pongamia pinnata</i> (L.) Pierre	20±0.04	0
<i>Eucalyptus lanceolatus</i> L. Herit.	16±0.88	20
<i>Leucas aspera</i> (Willd.) Spreng.	18±0.67	10
<i>Leucas procumbens</i> Desf.	17±0.19	15
<i>Sapindus emarginatus</i> Vahl.	20±0.05	0
<i>Santalum album</i> Linn.	20±0.12	0
<i>Azadirachta indica</i> A. Juss.	1±0.89	95
<i>Croton bonplandianum</i> Bail.	17±1.50	15
<i>Mangifera indica</i> Linn.	20±0.10	0
<i>Ocimum sanctum</i> Linn.	10±0.24	50
<i>Lantana indica</i> Roxb.	18±0.95	10
<i>Raphanus sativus</i> L.	17±0.09	15
Distilled water (Control)	20±0.00	0

± SEM.

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