A NEW LEAF-SPOT DISEASE OF RAMIE IN INDIA

In the course of investigations on the diseases of ramie (*Boehmeria nivea*) a leaf-spot disease caused by *Myrothecium roridum* Tode ex. Fr. has been observed at the Ramie Research Station, Sorbhog, Assam. This incidence has also been noted on ramie at Debi jhora area of West Dinajpur in West Bengal. There are reports in India that *M. roridum* attacks various plants of agricultural importance and causes considerable damage to them[1-4].

The first symptom appears as irregular, small, round, tan coloured spots about one mm. in diameter on the upper surface of the lamina. As the disease advances the spots become circular to irregular, 6–16 mm. in diameter and brown to dark brown in colour. In cases of severity the incidence of the disease is as high as 7–10%. On maturity the sporodochia develop in concentric rings as black dot like structures in the central regions of the spots.

Ramie plants (24 days old) were inoculated by spraying the spore suspension. Three days after inoculation similar symptoms appeared on the leaves. Fungal fructification was, however, noted after six days of inoculation.

On the basis of the morphological characters the fungus has been identified as *Myrothecium roridum* Tode ex. Fr. Since there is no report of this fungus on ramie the present investigation thus appears to be the first record form India or elsewhere.

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NUTRITIONAL VALUE OF *MORINGA*

Moringa or drumstick, [*M. oleifera* ; *M. concanensis*] locally called 'saijan', is well known as a poor man feed in so far as its leaves and pods are concerned. The pods and leaves have been reported[1] to be a rich source of vitamin C. *Moringa* attained significance in the last few years in view of its wood being a potential source of raw material for paper industry ; more so because it is a fast growing tree. A large-scale cultivation of *Moringa* is underway to meet the paper shortage. With this end in view a survey of *Moringa* plants was made in Lucknow District and 11 clones of *M. oleifera* and 2 clones of *M. concanensis* were selected and protein and fat were estimated at species level (*M. oleifera* and *M. concanensis*) whereas the vitamin C content was estimated at clonal level.

The seeds obtained from the mature fruits of *M. oleifera* and *M. concanensis* after extraction with *n*-hexane yielded pale yellow fat 27% and 33% respectively. The physical constants of *M. oleifera* fat were found to be, $n_D^{25°}$, 1·46 ; acid value, 0·26 ; iodine value, 66·1 ; while those of *M. concanensis* were $n_D^{25°}$, 1·46 ; acid value, 0·25 and iodine value. 67·07. The fatty acid composition of the seed fat of the two species by GLC revealed that the fats are rich in oleic acid and the composition of *M. oleifera* fat is in contradistinction to the observation of Rao *et al.*[2] (Table I).

TABLE I

Fatty acid composition

Fatty Acids	Present investigation		Rao *et al.*
	M. oleifera %	*M. concanensis* %	*M. oleifera* %
Lauric	12·5	0·6	..
Palmitic	9·6	9·1	9·3
Palmito-oleic	1·6	2·8	..
Stearic	3·0	2·4	7·4
Behenic	..	..	8·6
Oleic	73·3	83·8	65·7

The unsaponifiable portion (0·05%) of the seed fat from both the species on purification yielded small amounts of a sterol which on co-argentation TLC (silica gel G ; petroleum ether-chloroform-acetic acid, 75 : 25 : 2 ; 10% H_2SO_4 (v/v) spray) corresponded to β-sitosterol.

The detoxified seed meals of *M. oleifera* and *M. concanensis* were found to be rich in protein, 50% and 72·6% respectively. The seed meals are being tried as poultry feed and can also be considered for microbial fermentation.

The moisture and vitamin C contents of the fresh leaves as well as pods of various clones (11 varieties of *M. oleifera* and 2 varieties of *M. concanensis*) at two different stages, (*i*) tender and soft, (*ii*) mature and hard were determined[3] (Table II).