

## Observation on some elite genotypes ( cultivars ) of Coconut Palm for resistance to leaf blight ( grey leaf spot ) disease

---

S. K. DUTTA RAY\* AND S.A.K.M. KAISER

Department of Plant Pathology, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya ( BCKV ), Kalyani 741235, West Bengal, India

---

Observations were made on thirteen elite genotypes/cultivars of coconut palm for resistance to leaf blight ( grey leaf spot ) disease ( *Pestalotia palmarum* ) in the Indogangetic plains of West Bengal. Out of these, 11 genotypes, namely Andaman Ordinary, Local Tall, Laccadiv Micro, Laccadiv Ordinary, Strait Settlement Green, Philippines Ordinary, West Coast Tall, Dwarf, Tall X Dwarf, Dwarf X Tall, and Malayalam Dwarf X West Coast Tall showed acceptable level of resistance to this disease. In cross combinations resistance was dominant over susceptibility.

Key words : Genotype, Coconut Palm, Resistance, Leaf blight

---

Leaf blight or grey leaf spot disease caused by *Pestalotia palmarum* Cooke is one of the major diseases of coconut palm ( *Cocos nucifera* Linn. ) being particularly severe in Kerala ( Menon and Pandalai, 1958 ; Bose, 1985 ; Muliya *et al.*, 1986 ). The disease has also gained its importance in West Bengal during recent year ( Dutta Roy *et al.*, 1987 ). It may occur during the *kharif* season ( summer/monsoon ) at any stage of plant growth, and is characterized by the formation of greyish-white spots, surrounded by a brown band. In case of severe infection, hundreds of spots may be found on a leaf blade, causing blight and withering of the leaf ( Child, 1964 ). Although this disease causes considerable damage to the coconut cultivars in most of the coconut growing states of India, little information is available on the sources of resistance.

\* Department of Horticulture, Faculty of Agriculture, BCKV, Kalyani-741235, West Bengal.

### MATERIALS AND METHODS

A total number of 13 genotypes/cultivars originated from different countries of the world were included in the present study under the natural field condition at the Coconut Experimental Farm of BCKV situated in the Indogangetic plains of W. B.

The seedlings were planted in May-June of the year 1985 following the square system of planting. Each square consisting of 4 plants represented a single replication and 3 such replications for each genotype were kept. Normal agronomic practices were followed and no plant protection measure was undertaken. Constant source of inoculum of the pathogen was provided by establishing donor plants out of a local cultivar planted about 2 years back surrounding the experimental genotypes. The incidence of the disease was recorded after the rainy season of 1987 on the basis of 1 (very slight to slight infection) to 5 (very heavy infection) scale and the type of disease reaction in a genotype was determined as follows.

Average disease Index	Intensity of infection	Reaction
1 to 1.5	<i>Very slight to slight infection</i> , one or two to few scattered lesions on mature leaves of the outer whorl.	Resistant (R)
1.6 to 2.5	<i>Light infection</i> , moderate number of lesions on mature leaves only of the outer whorls.	Moderately resistant (MR)
2.6 to 3.5	<i>Moderate infection</i> , abundant lesions on mature leaves of the outer whorl.	Moderately susceptible (MS)
3.6 to 4.5	<i>Heavy infection</i> , lesions abundant on mature leaves, extending to upper leaves of the outer whorl.	Susceptible (S)
4.5 to 5.0	<i>Very heavy infection</i> , lesions abundant and coalesce to form irregular necrotic patches on the mature leaves of the outer whorl and complete drying and shrivelling of the leaf blade.	Highly susceptible (HS)

### RESULTS AND DISCUSSION

The reactions of different genotypes/cultivars of coconut palm to *P. palmarum* are presented in Table 1. The table shows that the genotypes varied greatly in respect of their reaction with the average grade ranging from R to HS. Out of 13 genotypes tested 2 genotypes, namely Andaman Ordinary and Dwarf x

Tall (D x T) were resistant whereas 9 genotypes, namely Local Tall, Laccadiv Micro (LM), Laccadiv Ordinary (LO), Strait Settlement Green (SSG), Philippines Ordinary (PhO), West Coast Tall (WCT), Dwarf (D), Tall x Dwarf (TxD), Malayalam Dwarf Yellow (MDY) x West Coast Tall were MR. The remaining 2 genotypes, namely T was MS and MDY was S. It may be noted from the cross combinations MDY x WCT and TxD that resistance was partially dominant over susceptibility. However, in the reciprocal cross combination DxT (with Dwarf cultivar as female and Tall as male) the parents showed more combining ability for resistance to this disease. Therefore, the two genotypes, namely WCT and D may be utilized as parents for the development of hybrid varieties resistant to *P. palmarum*.

**Table 1.** Reaction of different genotypes/cultivars of coconut palm to *Pestalotia palmarum*

Genotype/Cultivar	Reaction
Andaman Ordinary, Dwarf X Tall	Resistant
Local Tall, Laccadiv Micro, Laccadiv Ordinary, Strait Settlement Green, Philippines Ordinary, West Coast Tall, Dwarf, Tall X Dwarf, Malayalam Dwarf Yellow X West Coast Tall	Moderately resistant
Tall	Moderately susceptible
Malayalam Dwarf Yellow	Susceptible

#### ACKNOWLEDGEMENT

Grateful thanks are due to Dr. T. K. Bose, Professor of Horticulture, BCKV for his encouragement.

#### REFERENCES

- Bose, T.K. (1985). *Fruits of India. Tropical and Sub-tropical*. Naya Prakash, Calcutta India, 637 p.
- Child, R. (1964). *Coconuts*. Longman Groups Ltd., Essex, England, 126 p.
- Menon, K.P.V. and Pandalai, K.P.M. (1958). The coconut plant, a monograph. *Indian Central Coconut Committee*, Ernakulam 384 p.
- Muliyar, K.M.; Kailasam, C.; Rawther, T.S.S.; Pillai, G.B. and Das, P.K. (1986). Coconut. Package of practices. CPCRI, Kasaragod, Kerala, (ICAR), India, 23 p.
- Dutta Ray, S.K.; Mitra, S.K. and Kaiser, S.A.K.M. (1987). Studies on the incidence and sources of resistance of some major diseases of coconut palm in the Indogangetic plains of West Bengal. *Indian J. Mycol. Res.* 25, 55-66.

( Received for publication 30 November 1987 )