

## AN ALGAL PARASITE (*Cephaleuros* Kunze) ON ARECANUT PALM

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DURING the year 1959 an algal parasite (*Cephaleuros* Kunze) was noted on 4 year old arecanut palms cultivated in the Agricultural College Farm, Vellayani. *Cephaleuros* occurs on *Mangifera indica*, *Anacardium occidentale*, *Piper nigrum*, *Achras Sapota*, *Butea frondosa* and *Hevea brasiliensis* in this area.

*Cephaleuros* is reported from a number of plants from India: -

*Pandanus* sp. (Karsten, 1891), *Calathea metallica* (Karsten, 1891).

*Cinnamomum iners* (Cunningham, 1887; Mann & Hutchinson, 1907).

*Albizia stipulata* (Mann and Hutchinson, 1907.)

*Tephrosia candida* (Molisch, 1826), *Croton* sp. (Cunningham, 1880).

*Mangifera indica* (Cunningham, 1880; Bulter, 1906; Safeeulla and Govindu 1948).

*Zizyphus jujuba* (Karsten, 1891), *Thea sinensis* (Cunningham, 1880, 1887, 1897; Mann and Hutchinson, 1907).

*Commelina japonica* (Cunningham 1887; Mann and Hutchinson, 1907).

*Psidium Guvava* (Yadav, 1952), *Rhododendron* sp. (Cunningham, 1880).

*Limnanthemum indicum* (Cunningham, 1887).

Safeeulla and Govindu (1948) reported *Cephaleuros* from the following host plants from Mysore.

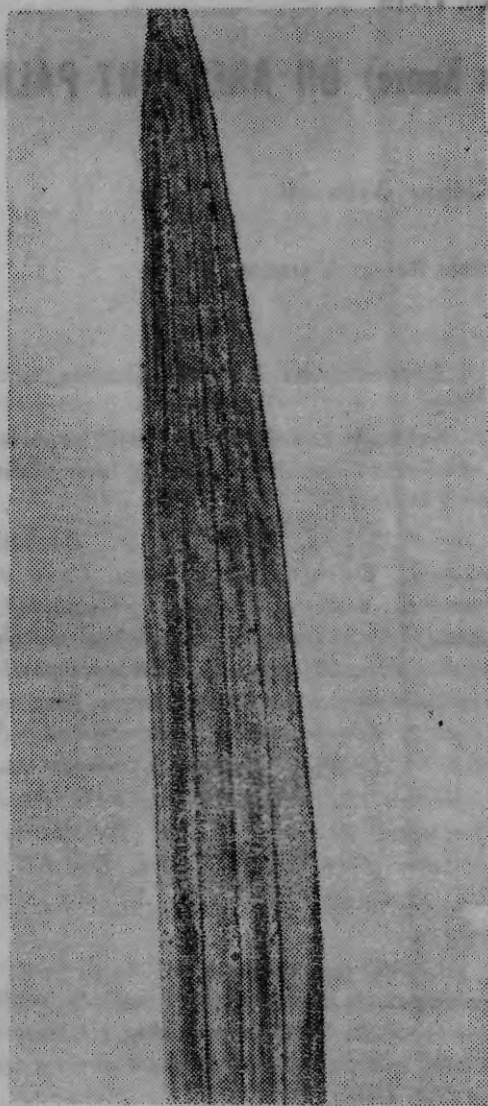
*Achras Sapota*, *Anthurium* sp., *Bauhinia recemosa*, *Calistemon lanceolatus*, *Canarium commune*, *Carissa Carandas*, *Cathaedulis*, *Chrysophyllum Cainito*, *Duabanga sonneratioides*, *Ficus Benjamina*, *Ficus macrophylla*, *Funtumia elastica*, *Ilex paraguensis*, *Jambosa vulgaris*, *Laurus nobilis*, *Loranthus Longi*, *florus*, *Michelia*, *Champa*, *Ochrocarpus longicilius*, *Peltophorum ferrugineum*, *Persea gratissima*, *Phytolacca dioica*, *Plecosperrum spinosum*, *Polyalthia longifolia*, *Scutia myrtina*, *Syzgium Jambolanum*, *Xylosma longifolium*.

*Cephaleuros* causes a serious disease on tea popularly known as 'Red rust'. Safeeulla and Govindu (1948) report that *Cephaleuros* occurs as a parasite on *Peidium guajava* and on *Olea dioica*.

*Cephaleuros* is not reported on arecanut palm and it occurs as a parasite. The parasite attacks the lower leaves and stem. In general, orange yellow patches are seen on the affected parts. But there is a slight

variation regarding the symptoms exhibited depending on the parts affected.

On the leaflets almost circular spots appear. The centre of the spots are sunken and margins raised as a ring showing the hairy growth of the parasite. The spots



vary in size from minute to larger spots about one cm. in diameter. There is an yellowish halo around the affected portions. The leaf spots are mostly confined to the upper surface of the leaves. In certain

cases, the growth of the parasite can be seen on the lower surface also. In that case, the growth on the lower surface is found corresponding to the growth on the upper surface.

On other parts of the plant, viz. the rachis, leafsheath and stem, irregular patches are formed which generally do not have the halo and sunken centre which is characteristic of the symptoms found on the leaflets. On the rachis the parasite is usually confined to the angle between the rachis and leaflet. Other parts of the rachis are also affected. Normally 3 to 4 lower leaf sheaths are attacked. A uniform deep orange velvety growth of the alga occurs on the leaf-sheath. During rainy season the entire outer surface of the oldest leaf-sheath is covered with the growth of the alga. In the case of other inner leaf-sheaths only the upper portion is affected. On the stem the parasite attacks three to four internodes just below the oldest leaf.

Examination of the affected leaf tissues shown that the parasite grows externally as well as internally. Over the leaf surface the thallus of the alga appears as a disc which is partially sunk in the cuticle. The disc is composed of more than one layer of radially elongated cells. Internal thalli of the parasite grows in between the host cells. The algal thallus can be distinguished from the host cells by the presence of the characteristic algal pigment. Host cells near by the algal thallus get discoloured. Thalli may also grow below the epidermal cells parallel to the epidermis thus causing the epidermis to break away from the palisade tissues. A downward intercellular growth of the parasite can be seen which may extend to the lower surface of the leaf.

The sporangiophores are seen growing out from the internal as well as external thalli of the parasite. From internal thalli they emerge out breaking the epidermis. The sporangiophores measure from 100 to

175 microns by 12 to 15 microns. Intermingled with them sterile hairs can be seen. Each sporangiophore is swollen into a vesicle at the apex, bearing four to six sporangia. The sporangia are attached to the vesicle by short curved pedicells. The sporangia are oval in shape and deep orange in colour and they measure from 20 to 25 microns.

A comparative study of the fructifications of *Cephaleuros* occurring on different host plants such as mango, arecanut palm, cashew, sapota, rubber, beaultia, pepper were made. No significant difference of fructifications were noted. The symptoms produced by *Cephaleuros* on the various host plants are almost identical except for the halo found around the spots produced on the lelets of arecanut palm.

### References

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| 1 Mann, H. H. and<br>Hutchinson, C. M.   | Mem. Dep. Agri. India. Bot. Ser.<br>1 : 1—35 (1907).  |
| 2 Karsten, G.                            | Untersuchungen uber die Familie der<br>Chroolepideen. Ann. Jard. Bot.<br>Buitenzorg, 10 : 1—66. 1891. |
| 3 Safeeulla, K. M. and<br>Govindu, H. C. | Half yearly, J. Mysore Univ. Sec. B.<br>11 : 47—49, 1948.   |
| 4 Yadav, A. S.                           | Current Sci. 22 : 280, 1952.  |

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