

## Notes on Chinese Rust Fungi

BY

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As a result of the work of Ling (1948), Tai (1947) and Cummins & Ling (1950) amongst others, reference lists of the rusts and smuts of China known to date are available. These notes add a few more records to those lists. Most of the specimens were brought to my notice by members of the Royal Botanic Garden staff to whom thanks are due.

### CAEOMA RADIATUM Shirai

on *Prunus conradinae* var. *trichogyna* Card.

Yunnan: Tengyueh, Forrest 29,462

Caeomata epiphyllous, 0.5–2 mm. in diameter, subepidermal, without paraphyses. Spores hyaline, subquadrate,  $23\text{--}26 \times 19\text{--}22 \mu$ , wall  $2\text{--}3 \mu$  thick, verruculose. Spermatogonia on the petioles and epiphyllous on the leaves, subepidermal, with a very conspicuous tuft of hyphae projecting from the ostiole.

Two species of *Caeoma* on *Prunus* spp. have been described—both from Japan. In 1895 Shirai described *C. radiatum* causing witches' brooms on *Prunus pseudo-cerasus*. Kusano, in 1906, described *C. makinoi* causing chloranthry of the flowers of *Prunus mume*. Kusano having examined a specimen of *C. radiatum* stated that it differed in sorus and spore size from his fungus. He examined a third specimen of a *Caeoma* on *Prunus grayana* which was more or less similar to *C. makinoi* except that the host distortion was less marked. He concluded that the three were very closely allied and might all belong to one species, the observed differences being due only to host reactions. A specimen of *C. makinoi* on *Prunus* sp. from Yunnan-fu collected by Handel-Mazzetti—Herb. C.M.I. 12,493—bears the large sori typical of *C. makinoi*, in marked contrast to the small sori in Forrest's collection. In the circumstances, until more is known of the biology of the group, these two species should be considered distinct.

### AECIDIUM SINO-RHODODENDRI Wilson

The species was originally described on *Rhododendron calvescens* (Wilson 1921, p. 261). The following are new host records:—

on *Rhododendron sphaeroblastum* Balf. f. & Forrest

Szechuan: Muli, Forrest 20447, 20446, 21010 and 21404.

on *Rhododendron schizopeplum* Balf. f. & Forrest

Yunnan: Mekong-Salween divide, Forest 19739; Atuntze, Forrest 19766; Chung-tien, Rock 17284.

on *Rhododendron dryophyllum* Balf. f. & Forrest

Yunnan: Mts. of Hung Po, Rock 22895; Yangtze-Mekong watershed, Rock 11342.

Barclay (1891, p. 72) described an aecidium on *R. campanulatum* from Simla, thirty years before Wilson's description, but seems deliberately to

have refrained from proposing it as a new species, although referring to it in a text diagram as "*Aec. rhododendri*." Watt (1895, p. 80) referred to an aecidium on *R. lepidotum*, but gave no description.

#### CHRYSOMYXA

No less than four species of *Chrysomyxa* have been described on *Rhododendron*, namely *C. dietelii* Sydow, *C. rhododendri* de Bary, *C. expansa* Diet. and *C. himalensis* Barclay. The first three species have been reported from China on various species of *Rhododendron*. *C. himalensis* has been collected only in the Indian Himalaya. *C. dietelii* and *C. rhododendri* possess uredo stages; *C. expansa* and *C. himalensis* are microcyclic. The teleutospores of *C. himalensis* are borne in distinctly stalked heads, most frequently on the host petioles. In comparison *C. expansa* is exclusively hypophyllous and the teleutospore masses are sessile, barely projecting beyond the ruptured epidermis.

#### CHRYSOMYXA EXPANSA Diet.

on *Rhododendron erythrocalyx* Balf. f. & Forrest

Yunnan: Bei-ma-Shan, Forrest 13938, Forrest 13939, Forrest 13989.

on *Rhododendron selense* Franch.

Szechuan: Muli, Forrest 16318.

on *Rhododendron decorum* Franch.

Yunnan: Banks of Chung-tien river, Forrest 13807; Langkong valley, Forrest 5840, Forrest 5841; Lichiang Range, Forrest 5869.

on *Rhododendron wardii* W. W. Sm.

Yunnan: Bei-ma-shan, Forrest 14028; Atuntze, Forrest 13991; Chung-tien, Forrest 16511.

Szechuan: Muli, Forrest 16493.

Teleuto-sori hypophyllous, forming pale orange spots 0.25-1 cm. in diameter. Sori, pale orange, 200-250  $\mu$  in diameter surrounded by the rupture epidermis. Spore chains c. 100  $\mu$  in length, spores 18-30  $\times$  8-10  $\mu$ .

This species was originally described on *R. metternichii* from Japan. Teng (1940) reported it from Yunnan and Szechuan on *Rhododendron* sp. and his specimen in Herb. Kew appears similar to Forrest's collections.

#### CHRYSOMYXA RHODODENDRI de Bary

on *Rhododendron wardii* W. W. Sm.

Yunnan: Feng-kou, Forrest 12697; Yangtze bend, Forrest 10438; Mekong-Salween divide, Forrest 19743; Likiang, Rock 9777; Atuntze, Rock 9252.

Only uredo spores are present in all these collections. As the collections of teleuto of *Chrysomyxa expansa* listed above were collected at the same season of the year and at approximately the same altitude as the uredo on *R. wardii*, these two stages are probably quite unrelated to one another.

*C. rhododendri* has been recorded on *R. dauricum*, *R. decorum*, *R. faberi* and *R. micranthum* in China (Cummins & Ling, 1950, p. 526).

## GYMNOSPORANGIUM CONFUSUM Plowr.

on *Cotoneaster ambigua* Rehd. & Wilson

Kansu : Gargannar, Ching 884.

on *Cotoneaster rubens* W. W. Sm.

Yunnan : Chienchuan—Mekong divide, Forrest 22271.

These two collections of aecidia only undoubtedly belong to the *G. confusum*—*G. fusisporum* group, characterised by disintegrating peridia, transverse ridges on the peridial cells and moderately thick-walled verruculose spores, and cannot be separated with any certainty from *G. confusum*. Crowell (1940, p. 481) lists *G. confusum* as a species confined to Europe in his review of world distribution of the genus, but notes that it probably extends eastwards into Asia. In Europe *G. fusisporum* occurs on *Cotoneaster*, but as Jørstad (1943, p. 196) points out it cannot be distinguished from the aggregate species *G. confusum* except in the diplont phase.

## PUCCINIA CORONATA Corda

Aecidia on *Berchemia racemosa* Sieb. & Zucc.

Szechuan : K. L. Chu 2862.

Aecidia on *Berchemia sinica* Schneider

West Hupeh : E. H. Wilson 3386.

This species has been recorded in China on a number of grass hosts and on *Rhamnus* sp. and *R. leptophyllus* (Tai, 1947, p. 116) and on *Berchemia* sp. and *B. racemosa* (Cummins & Ling, 1950, p. 540).

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