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## Plant Pathogenic Rust Fungi from Tropical and Subtropical Regions: A Monograph of the Genus *Hemileia* (Uredinales)

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### Abstract

With about 7000 species, rust fungi are the biggest group of obligate plant parasites. They are worldwide distributed and have an enormous economical significance. Nevertheless, rusts from tropical regions are still insufficiently studied and summarising works, e.g. floras and monographs are widely lacking. The aim of the present work was to prepare a monograph of the genus *Hemileia* and to contribute thereby to the knowledge about tropical rust fungi. The type species of *Hemileia*, *H. vastatrix*, parasitises on coffee and represents one of the economically most important pathogens within the coffee growing regions. The morphology and the parasitism of the species have therefore been examined by numerous mycologists and phytopathologists. Much less information exists, however, about the other representatives of *Hemileia*. Forty-two species are so far known, occurring mainly on members of the Rubiaceae and Apocynaceae within the tropical to subtropical regions of Africa and Asia. Seventeen of them are based on the uredinial stage only, twenty-five are also known as the teleomorph. Aecia or spermogonia belonging to *Hemileia* have not been found so far and the life cycle is still incompletely known. All species, as far as available as herbarium specimen, were observed by means of light- and electron microscopical methods. The present monograph contains information about the history and taxonomy of the genus, as well as detailed descriptions and illustrations of all *Hemileia* species. Doubtful, unclear and excluded species were also listed and discussed. A list of host genera and species, together with keys to the *Hemileia* species occurring on them, is also provided as a tool for determination.

**Keywords:** Determination, *Hemileia*, monograph, rust fungi, Uredinales