

English summary of papers which appeared in Nippon Kingakukai Kaiho Vol. 42 (2001)

Review: A taxonomic and biogeographical study of the Asiatic species of polypores

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Polypores distributed in Japan are divided into 11 groups according to the distribution patterns as follows: 1) cosmopolitan species; 2) pantemperate species; 3) circumpolar temperate species; 4) Eurasian temperate species; 5) American-Asian temperate species; 6) East Asian temperate species; 7) endemic species in Japan; 8) East Asian-Southeast Asian mountainous species; 9) pantropical species; 10) paleotropical species; and 11) Asian tropical species. *Perenniporia japonica* belongs to the Eurasian temperate species group. *Phellinus acontexus*, *Inonotus flavidus*, *I. scaurus*, *Loweporus pubertatis*, etc. are East Asian temperate species. *Phellinus setifer*, *P. macroferreus*, *P. velutinus* and *Inonotus boninensis* are hitherto known only from Japan. *Antrodiella aurantilaeta* is proved to be distributed both in temperate East Asia and in a mountainous area in Southeast Asia. Of species distributed in mountainous areas of Southeast Asia, some are expected to be common to East Asian temperate areas, and others to be endemic.

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Review: Secondary metabolites of mushrooms as stimulators of nerve growth factor-synthesis

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Stimulators of nerve growth factor (NGF)-synthesis are potential medicines for treatment of degenerative neuronal disorders and promotion of peripheral nerve regeneration. Some natural products exhibiting such activity have been reported. This review discusses research into the stimulators from mushrooms.

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Note: Notes on three species of the genus *Nigrospora* isolated from *Phragmites* species

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Three *Nigrospora* species were isolated from two reed species in Kinki District, central Japan, which can be identified as *N. oryzae*, *N. sphaeria* and *N. sacchari* by ranges of their conidial measurements.

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Original paper: Number and gut contents of *Hypogastrura denisana* Yosii (Collembola: Hypogastruridae) on wild mushrooms in relation to morphological features of the mushrooms

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Individual numbers and gut contents of collembolans collected from 27 species of agaric fruit bodies occurring in a mixed forest of *Pinus densiflora* and *Quercus serrata* were studied. Most of the collembolans on the fruit bodies were *Hypogastrura (Ceratophysella) denisana*. The numbers of *H. denisana* relative to pileus size of the fruit bodies were significantly different among fungal species, and they did not correlate significantly with surface area of gills relative to pileus size, gill depth or distances between two adjacent gills.

In basidiospores contained in the gut of *H. denisana*, three types were distinguished in the degree of deformation of the spores: intact, flattened, and hollowed and partly broken spores. These corresponded to morphological features of the spores at a higher taxonomic level. Most pigmented basidiospores kept their original shape, while hyaline, smooth ones were flattened. Hyaline spores with spines or tubercles were found intact, or hollowed and partly broken.

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Original paper: Distribution of nematode-trapping fungi in the soils of Okinawa Island and analysis of its causal factors

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Nematode-trapping fungi distributed in Okinawa Island, were isolated and identified, and the physical, chemical and biological factors in their distribution were analyzed. Eighteen species of fungi in five genera, including one unidentified species, were collected from across Okinawa Island. *Arthrobotrys oligospora* and *Monacrosporium eudermatum* were dominant species, followed by *A. conoides* and *Stylopage* sp. in order. *Arthrobotrys javanica*, *Dactylaria effusa*, *M. lysipagum*, and *M. phymatopagum* were newly recorded in Japan. These species showed specific distribution patterns according to the parent materials, depth, vegetation, pH and humus and calcium contents of the soil. Various calcium salts were added to Hopkins basal medium to examine the effect on hyphal growth, and all compounds except CaCl₂ and CaSO₄ were found to stimulate the

growth of three nematode-trapping fungi out of five. In dual cultures of the 18 fungi from soils, *M. bembicodes* was strongly antagonized by *Penicillium* K1530B.

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Review: Taxonomic and ecological studies on plant parasitic fungi especially on woody plants

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This paper reviews studies on the taxonomy and ecology of parasitic fungi, especially those parasitic on woody plants, conducted by the author. These studies cover the following five subjects: 1) evaluation of taxonomic criteria of rust fungi at the species level, and the revision of taxonomy in several groups of rust fungi; 2) elucidation of the heteroecism of rust fungi; 3) the elucidation of the conditions determining the germination type of basidiospores in rust fungi, and nuclear behavior in germinating basidiospores; 4) taxonomy and identification of ascomyceteous and coelomyceteous parasitic fungi on woody plants; and 5) elucidation of the ecology and function of ascomyceteous and coelomyceteous parasitic fungi on woody plants. In rust fungi, taxonomic revisions based on several new taxonomic criteria are described, particularly with respect to melampsoraceous rust groups. The positive results of experiments on heteroecism are also summarized. In ascomyceteous and coelomyceteous parasitic fungi on woody plants, studies on parasitic fungi on fagaceous trees, blue stain fungi, and endophytic fungi are reviewed. The necessity of further experiments to clarify the various functions of parasitic fungi is emphasized for the preservation of healthy forest ecosystems.

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Review: Taxonomy and ecology of endophytic fungi

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Studies on the taxonomy and ecology of endophytic fungi of ericaceous plants, mangrove trees, and chenopodiaceous halophytes have afforded biological information on not only endophytic fungi, but also fungi known as saprophytes or plant pathogens. In the course of the studies, three new taxa living in plant tissues were described, *Guignardia endophyllicola* (anamorph *Phyllo-*

sticta capitalensis, Mycosphaerellaceae) and *Discostroma tricellulare* (anamorph *Seimatosporium azaleae*, Amphisphaeriaceae) from ericaceous plants, and *Surculiseria rugispora* (mitosporic fungi, Xylariaceae) from *Bruguiera gymnorrhiza*. These studies also revealed several ecological phenomena: 1) successional changes and life cycles of major endophytes of ericaceous plants, 2) the broad host range and distribution of *G. endophyllicola*, 3) the site-specificity of flora of endophytes on *B. gymnorrhiza*, and 4) the host-preference and universality of flora of endophytes on *Salicornia europaea* and other chenopodiaceous plants growing in salt marshes. Such information acquired from studies on endophytic fungi contributes to clarification of the diversity of fungi associated with plants.

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Note: An overview of yeast taxonomy

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19–15, Higashi-Kouri 1, Hirakata, Osaka 573–0075

This paper outlines the history of studies in yeast taxonomy in the 19th and 20th centuries, from the discovery of yeast as an alcohol-fermenting agent to the current state of classification of the yeast genera. Studies on ascomycetous and basidiomycetous yeasts are covered, as well as on yeasts in the mitosporic fungi, which are necessary to construct the historical view of the field.

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Short Communication: Japanese fungicolous ascomycetes, three *Hypomyces* species

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Three species of the genus *Hypomyces*, *H. armeniacus*, *H. luteovirens*, and *H. hyalinus*, were examined. Among them, *H. armeniacus* was recorded for the first time from Japan. The Japanese specimen of *H. luteovirens* produced slightly larger ascospores than those reported in the literature. One of the specimens of *H. hyalinus* had KOH-positive perithecia.

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