

Onuma Jeamjitt 2007: Diversity of Coprophilous Fungi, Antagonism Against Plant Pathogenic Fungi, and Secondary Metabolites of *Ascodesmis macrospora* and *Sordaria fimicola*. Doctor of Philosophy (Plant Pathology), Major Field: Plant Pathology, Department of Plant Pathology. Thesis Advisor: Associate Professor Leka Manoch, Ph.D. 173 pages.  
ISBN 974-9846-79-6

Sixty dung samples from wildlife and domestic animals, including barking deer, buffalo, camel, cow, deer, eld's deer, elephant, gaur, goat, horse, rabbit, rat and toad, were collected from 18 provinces in Thailand. Different isolation methods such as the moist chamber, soil plate, dilution plate, heat and alcohol treatments were used. Identification of the fungal isolates was based on morphological characteristics of colony growth on agar media and examined the spores and fruiting bodies using stereo and light microscopes. Twenty-four genera of true coprophilous fungi were recorded in this study, including *Absidia*, *Arthrobotrys*, *Ascobolus*, *Ascodesmis*, *Aspergillus*, *Cephalophora*, *Cercophora*, *Chaetomium*, *Coprinus*, *Cunninghamella*, *Emericella*, *Gelasinospora*, *Mucor*, *Nodulisporium*, *Oidiodendron*, *Papulaspora*, *Pilobolus*, *Podosordaria*, *Podospora*, *Rhizopus*, *Saccobolus*, *Sordaria*, *Sporormiella* and *Zopfiella*. Nothworthy coprophilous fungi representing new records for Thailand are *Ascobolus albidus*, *Ascodesmis sphaerospora*, *Cercophora silvatica*, *Gelasinospora brevispora*, *Nodulisporium gregarium*, *Oidiodendron griseum*, *Pithomyces karoo*, *Podosordaria leporina*, *Sporormiella minima* and *Zopfiella latipes*.

Antagonistic activity tests of *Ascodesmis macrospora* and *Sordaria fimicola* were conducted on potato dextrose agar against 9 species of plant pathogenic fungi including *Alternaria alternata*, *Curvularia lunata*, *Fusarium oxysporum*, *Colletotrichum capsici*, *Pestalotiopsis guepinii*, *Lasiodiplodia theobromae*, *Pythium aphanidermatum*, *Rhizoctonia solani* and *Sclerotium rolfsii*. The results indicated that six isolates of *S. fimicola* could inhibit > 50% mycelial growth of *P. guepinii*, *C. capsici*, *C. lunata*, *A. alternata* and *F. oxysporum*. Four isolates of *S. fimicola* could inhibit *L. theobromae*, whereas two isolates could control *P. aphanidermatum*. This fungus failed to inhibit mycelium growth of two Basidiomycetes anamorphs, *R. solani* and *S. rolfsii* *in vitro*.

Secondary metabolites of *A. macrospora* and *S. fimicola* were observed by cultivating the fungal cultures on potato dextrose broth for 28 days at 28-30 °C. The cultures filtrates were extracted three times with equal volume of EtOAc at room temperature. The organic phase was evaporated under reduced pressure with a rotary evaporator. The crude ethyl acetate extracts were applied to column chromatography and eluted with gradient mixture of petroleum ether, chloroform, and acetone. The compounds were purified by TLC and the structures were established by spectroscopic methods as well as comparison of their NMR data. Ergosterol; 7, 8- dehydroergosterol and 3-keto derivative of ergosterol were isolated from *A. macrospora* and parahydroxy parahyde was isolated from *S. fimicola*.

Onuma Jeamjitt

Student's signature

Leka Manoch

Thesis Advisor's signature

3 / Jan / 2007