The **Mycology Section** is cataloguing mycologists and their research in the various regions in Canada. The degree sought is in brackets after researchers name

The **Directory of Western Canadian Mycologists** has been compiled by Randy Currah of the Devonian Botanic Garden and the Department of Botany, University of Alberta: Edmonton.

UNIVERSITY OF VICTORIA

J. W. Paden (Dept. of Biology)
Biosystematic studies of Discomycetes and Pyrenomycetes, especially Pezizales, of western Canada and the northwest United States. Morphology, growth in culture, physiology, anamorphs, teleomorph-anamorph connections, cytology. Ecology and taxonomy of soilborne fungi.

UNIVERSITY OF BRITISH COLUMBIA: VANCOUVER

R. J. Bandoni (Dept. of Botany)
Studies in the taxonomy and biology of Heterobasidiomycetes, especially Tremellales, Auriculariales, and Atractiellales.
Xia Guoping (Ph.D.)
Pete Seidle (M.Sc.)

Shannon M. Berch (Dept. of Soil Science)
Taxonomy and distribution of Endogonaceae in B.C. Application of mycorrhizal fungi in agriculture and forestry.
Sharmin Gamiet (M.Sc.)
Study of the interactions of VAM fungi, apple rootstocks and apple replant disease.
Barb Cade (M.Sc.)
Effects of cultivation practices on mycorrhizal status of winter wheat.
Aaron Roth (M.Sc.)
Changes in mycorrhizal status of nursery douglas-fir, western hemlock and western red cedar seedlings after outplanting.
Retno Peni Sancayaningsih (M.Sc.)
VAM fungi of forestry plantations in Java, Indonesia.
Lynn Husted (Ph.D., Dennis Lavender, Supervisor - Forest Science)
Evaluation of root temperature effects on growth, physiology and root development of white spruce seedlings inoculated (or not) with mycorrhizal fungi.

Gilbert C. Hughes (Departments of Botany and Oceanography)
Studies of the ecological biogeography of the marine fungi with particular emphasis on lignicolous and algicolous species. Field and laboratory studies of the effects of environmental parameters, especially salinity and temperature, on the growth and reproduction of marine Ascomycetes and Fungi Imperfecti. Fungal pathogens of seaweeds, fish and invertebrate animals. Particular emphasis on fungal diseases of these organisms when grown under aquaculture conditions. Included are studies of saprolegniasis in fish farms and its significance as a disease of of marine and freshwater fishes grown under these regimes.
Kelly Gratto (Ph.D.)An investigation of the fungi associated with natural populations of *Zostera marina* in British Columbia coastal localities. The roles of fungi as symbionts, as pathogens, and as decomposers of eel grass leaves and rhizomes. The nature of fungal-eel grass interfaces is being elucidated and studied through cytological, histochemical, and ultrastructural investigations.

Bart J. van der Kamp (Dept. of Forest Science)
Variation and stability of the lodgepole pine - western gall rust pathosystem. Studies of the inheritance of resistance (mostly horizontal) and variation (very great in pine, almost none in the rust) designed to determine how a "balance" is maintained in this natural pathosystem.
H. O. Kojwang (Ph.D.)
Some aspects of inheritance of re sistance to western gall rust by lodgepole pine.
J. Wong (Ph.D.)
Effect of *Melampsora occidentalis* on growth and carbohydrate metabolism and allocation in western black cottonwood.
R. Reich (M.Sc.)
Frost damage, boron deficiency and secondary canker fungi all play a role in dieback in interior douglas fir plantations.
J. D. Beale (M.Sc.)
The incidence and severity of *Phellinus weirii* as related to site factors in B.C. coastal immature forests.

BALCO CANFOR REFORESTATION CENTRE LTD.: KAMLOOPS

Gary Hunt
Effects of ectomycorrhizal fungi on container seedling quality and plantation performance. Effects of growth regulators on rootgrowth, seedling morphology and plantation performance of container grown conifers. Effects of varying fertility levels on mycorrhizal colonization and root development in container grown conifers.

PACIFIC FORESTRY CENTRE: VICTORIA

Charles E. Dorworth
Identification of forest crop/weed competition problems regionally. Collection of potentially useful weed biocontrol micro-organisms. Testing of pathogenicity and virulence and promo tion of same to preindustrial levels of application.

Thomas N. Sieber (Visiting Scientist, Microbiologisches Insti tut, Zurich)
Mycoherbicides useful in con straint of undesirable forest weeds. Isolation and characterization of endophytic fungi of forest weeds.

Alvin Funk (Forest Pathology)
Taxonomy of Ascomycetes and Deuteromycetes associated with cankers, diebacks and foliage diseases of western trees. Diagnostician for the Forest Insect and Disease Survey of the Canadian Forestry Service in B.C. and Yukon.

Ronald E. Wall
Biological control of forest weeds: search for native pathogens with potential as mycoherbicides on tree, shrub, or herbaceous vegetation which competes with commercial tree species. Major target species are *Rubus parviflorus* Nutt., *R. spectabilis* Pursh, *R. idaeus* L., *Alnus rubra* Bong., *Populus tremuloides* Michx., and *Epilobium angustifolium* L. Efficacy compatibility with other forest practices, and biohazard of candidate organisms are considered.

H. S. Whitney (Biological Control)
Biology of *Beauveria bassiana*, spore production, pathogenicity, spore germination and nuclear phenomena.

UNIVERSITY OF ALBERTA: EDMONTON

Peter V. Blenis (Plant Science)
Forest pathology, epidemiology, mycology. Special interests in *Armillaria* spp. and *Endocronartium harknessii* (Western Gall Rust).

Anthony Hopkin (Post Doc., with Y. Hiratsuka, Northern Forestry Centre)
Histological studies of *Endocronartium harknessii*. Light and electron microscope studies of interspecific, intraspecific, and clonal interactions of *Armillaria* spp.

Henry Klein Gebbinck(M.Sc.)
Epidemiology of *Armillaria* root rot in west central Alberta.

Kan-Fa Chang (Ph.D.)
Release, dispersal, and survival of *E. harknessii* spores.

Eric Allen (Ph.D.)
Histological studies of *E. harknessii* on lodgepole pine. Axenic culture of *E. harknessii*

Randy Currah (Devonian Botanic Garden and Dept. of Botany)
Taxonomy and ecology of keratinophilic Ascomycetes. Taxonomy of mycorrhizal endophytic fungi of Orchidaceae and Ericaceae. Distribution of ectomycorrhizal fungi of Alberta.

Godo Stoyke (M.Sc.)
Taxonomy and ecology of alpine ericoid mycorrhizal fungi.

F. Nargang (Dept. of Genetics)
Mitochondrial biogenesis in *Neurospora crassa.*

Mariola Drygas
Cloning and analysis of cytochrome c heme lyase in *N. crassa.*

Drell Bottorff
Cytochrome c in *N. crassa*

M. A. Pickard (Dept. of Microbiology)
Fungal physiology and biochemistry: aspects of the control and regulation of fungal peptide production using chloroperoxidase (*Caldariomyces fumago*) and cyclosporines (*Tolypocladium niveum*) as model systems. Continuous enzyme production, immobilized enzymes and fungal cells. Scale up of laboratory fermentations and fermenter design. Biological and chemical control of pine stem rusts.

James E. Cunningham(M.Sc.)
Control of pine stem rusts by malton, a fungal metabolite produced by the rust hyperparasite *Scytalidium uredinicola* (1986).

Robert D. Carmichael(M.Sc.)
Continuous production of chloroperoxidase by *Caldariomyces fumago* using fermenters. (1987).

Charles E. Isacc (M.Sc.)
Comparative studies on cyclospo rine production by isolates of *Tolypocladium niveum.*

Tenshuk A. Kadima (M.Sc.)
Immobilization of the heme glycoprotein chloroperoxidase and its potential use in wastewater treatment.

Carol J. Fode (M.Sc.)
Isolation and characterization of *Tolypocladium inflatum* mutants producing modified levels of cyclosporines.

Keith Egger (Dept. of Forest Science)
Systematics and phylogeny of "E-strain" mycorrhizal fungi in the genus*Wilcoxina* (Pezizales, Ascomycetes). Taxonomic and population structure using restriction fragment polymorphisms in ribosomal RNA genes in order to examine phylogenetic relationships among *Wilcoxina* taxa, and related species in the genus *Tricharina.*

Awatar S. Sekhon (Provincial Laboratory of Public Health)
Fungus immunology. Characteri-

zation of fungal antigens and their application in the specific and rapid identification of fungi of medical importance. Development of rapid and specific methodologies for the diagnosis of mycotic infection. Epidemiology of fungal infections. Evaluation and standardization of diagnostic reagents. *In vitro* susceptibility testing of antibiotics.

Lynne Sigler (Microfungus Collection, Devonian Botanic Garden and Dept. of Medical Microbiology and Infectious Diseases).
Taxonomy and ecology of microfungi, with emphasis on Hyphomycetes. Cultural and taxonomic studies of ectomycorrhizal fungi associated with lodegpole pine and white spruce in Alberta.

J. P. Tewari (Plant Science)
Fungal diseases of canola, coffee and saskatoons; VA mycorrhizae in barley.

P. S. Bains
Toxin production by *Alternaria brassicae*.

S. Boyetchko
VA mycorrhizae of barley and their interaction with common root rot disease.

A. Calman
Pathogens of seedling blight of Canola and their biological control

K. Conn
Phytoalexin elicitation in crucifers.

A.Paniagua
Strain variation in *Mycena citricolor*.

R.Pluim
Dieback disease of Saskatoon by *Cytospora*.

UNIVERSITY OF CALGARY

Robert M. Danielson (Kananaskis Centre for Environmental Research)
Selection of mycorrhizal fungi for artificial inoculation programs of spruce and pine. Development of techniques for inoculating multi- and late-stage fungi. Studies on the succession of ectomycorrhizal fungi of spruce and pine. Mycorrhizal associates of urban spruce, and natural spruce regeneration.

Dennis Parkinson (Kananaskis Centre for Environmental Research and Dept. of Biological Sciences)
Ecology of fungi in coniferous forest organic layers and mineral soil. Fungal biomass dynamics (including influences of macroclimate and soil organic matter). Efficiency of species as decomposers. Interactions with the litter/soil fauna.

Kumudu Tillekeratne (Ph.D.)
Competitive interactions between fungi in early stages of decomposition of spruce and pine needles. Physiological characters of individual, early colonizing fungi and their roles as decomposers.

Mary Ann McLean (M.Sc.)
Effects of fungal-faunal interactions on organic matter decomposition in a lodgepole pine forest.

Suzanne Visser (Kananaskis Centre for Environmental Research)
Use of vesicular-arbuscular mycorrhizal fungi to promote the growth of silver-berry (*Eleaegnus commutata*) and buffalo berry (*Shepherdia canadensis*) on disturbed and derelict land. Effects of stress caused by forest floor acidification and/or liming on fungal communities in a lodgepole pine forest.

NORTHERN FORESTRY CENTRE: EDMONTON

Y. Hiratsuka
Taxonomy, cytology, life cycle, and pathology of forest tree rusts. Monograph of pine stem rusts (*Cronartium, Endocronartium*). Fungal flora and their roles in mountain pine beetle-attacked trees. Mycoparasites of pine stem rusts. Reference collection (herbarium) and culture collection of forest fungi of the prairie provinces. Western gall rust resistance testing in conjunction with tree improvement programs of hard pines.

A. A. Hopkin (Post. Doc.)
Host-parasite relationship of western gall rust and lodgepole and jack pines.

Y. Yamaoka (Post. Doc. Visiting Scientist)
Fungi associated with mountain pine beetles.

Eric Allen (Ph.D. with P.Blenis)
Host-parasite interaction of western gall rust on lodgepole pine.

K. I. Mallett
Forest pathology. The biology of *Armillaria mellea* complex. Fungal genetics. Wood decay fungi.

AGRICULTURE CANADA: BEAVERLODGE

John G. N. Davidson
Identification, determination of the commercial significance and control of fungus diseases of saskatoons. Identification, significance and control of snow mold pathogens of overwintering cereals, grasses and legumes.

Regina Pluim (M.Sc.)
Identification and demonstration of pathogenicity of *Cytospora* spp. on *Amelanchier alnifolia*; survey of frequency and occurrence in Alberta; etiology of the dieback disease thus caused; determination of existence of virulent strains or biotypes.

AGRICULTURE CANADA: LACOMBE

L. Piening
The role of *Cochliobolus sativus* and *Fusarium* spp. in common root rot of cereals. The biochemical differences between sporulating, virulent cultures of *Pyrenophora teres* and the non-sporulating, avirulent cultures of *P. teres* (net blotch of barley).

AGRICULTURE CANADA: LETHBRIDGE

Denis A. Gaudet
Ecological aspects in the distribution of sclerotial and non-sclerotial forms of *Coprinus psychromorbidus*, the cottony snow mold organism. Comparative pathogenicity of different strains of *C. psychromomorbidus*.
Environmental aspects in the pathogenicity and distribution of different races of the common bunt organisms, *Tilletia caries* and *T. foetida* on wheat.

H. C. Huang
Biology and control of *Sclerotinia* diseases *Sclerotinia sclerotiorum* on oilseed and pulse crops. Survival, epidemiology and control of *Verticillium* wilt of alfalfa.

Debbie L. McLaren (Ph.D. with R. S. Rimmer, University of Manitoba)
Biological control of *Sclerotinia sclerotiorum* using the hyperparasites *Talaromyces flavus* and *Coniothyrium minitans*.

Eric G. Kokko (Electron Microscopy)
Ultrastructure of fungi. Taxonomy. Plant Pathology. Invasion mechanisms of plant disease fungi. Biological control.

ALBERTA AGRICULTURE: BROOKS

R. J. Howard (Crop protection and utilization section)
Screening processing pea cultivars for resistance of *Fusarium* root rot. Efficacy of seed treatment fungicides on safflower. Survey of seedborne and seedling disease of safflower, dry peas and dry beans in southern Alberta. Efficacy and phytotoxicity of fungicides applied to cucumbers for the control of *Pythium* damping-off. Survey for corky root rot (*Pyrenochaeta lycopersici*) on greenhouse tomatoes. Thermal inactivation of *Verticillium albo-atrum* in infected Alfalfa stems. Effect of commercial dehydration and pelleting on the survival of *Verticillium albo-atrum* in infected alfalfa hay. Survey for*Verticillium* wilt in irrigated alfalfa fields. Survey of diseases on irrigated forage grass seed crops in Alberta. Efficacy and phytotoxicity of fungicides on saskatoons. Efficacy of fungicides against powdery mildew (*Oidium* sp.) and root rot (*Pythium* spp., *Rhizoctonia solani* and *Fusarium* spp.) of *Cissus rhombifolia*.

Regina Pluim (M.Sc., with John G. Davidson)
Etiology, epidemiology and control of dieback disease of saskatoon.

ALBERTA ENVIRONMENTAL RESEARCH CENTRE: VEGREVILLE

Steve Davies
Cultivation of exotic mushrooms, (*Pleurotus, Flammulina, Hericium*), on cellulosic wastes. Use of white-rot fungi to decolorize pulping effluents.
Production of biopolymers by fungal fermentation.

Prem D. Kharbanda (Plant Sciences)
Cultural and pathogenic variability in *Leptosphaeria maculans*, the cause of blackleg disease of canola. Determination of its race structure, heterothallism, survival and control. Identification of *Fusarium* spp. associated with cereals overwintered under snow, and those associated with root rot and wilt of peas and lentils.

ALBERTA RESEARCH COUNCIL: EDMONTON

Frank Kozar
Ultrastructure and life cycle of *Gymnosporangium clavipes* and *Ustilago hordei*

Alan Jones (Biotechnology)
Fungal fermentation aimed at improving product yields. Biodegradation of ligno-cellulosic wastes. Use of depolymerized lignin. Use of fungi as biocontrol agents, i.e. bioinsecticides, bioherbicides. Utilization of agricultural wastes by fungi.

UNIVERSITY OF SASKATCHEWAN: SASKATOON

Hans E. Gruen (Dept. of Biology)
Control of fruitbody growth in the agaric *Flammulina velutipes*, especially the role of the pileus and mycelium in stipe elongation. Ethnomycological and historical studies of fungi used as tinder.

Robin A. A. Morrall (Dept. of Biology)
Diseases of canola and pulse crops with emphasis on epidemiology and chemical and cultural control. *Sclerotinia* stem rot and blackleg

of canola and *Ascochyta* blight of lentil.

B. K. Teo (Professional Research Associate)
Effects of soil moisture and leaf wetness on epidemiology and cultural control of *Sclerotinia* stem rot and blackleg. Studies of hyperparasites and soil-incorporated herbicides and their interaction with soil water potential on sclerotium germination in *Sclerotium sclerotiorum.*

T. K. Turkington (Ph.D.)
Forecasting *Sclerotinia* stem rot of canola.

K. Xi (Ph.D.)
Epidemiology and chemical control of blackleg of canola.

S. V. Rude (M.Sc.)
Late bloom fungicide application to control *Sclerotinia* stem rot of canola.

S. Bedi (M.Sc.)
Development of tolerances for seed borne inoculum of *Ascochyta fabae* f. sp. *lentis*

J. Drew Smith (Dept. of Horticultural Science)
Studies on the taxonomy, biology and control of fungal diseases of amenity turf grasses particularly of low-temperature-tolerant pathogens and their antogonists and of fairy ring fungi.

AGRICULTURE CANADA: MELFORT

W. B. Berkenkamp
Identity, severity, distribution and control of fungal diseases of crops in northeastern Saskatchewan, with emphasis on pea diseases.

AGRICULTURE CANADA: REGINA

Robert Makowski (Biocontrol section)
Biological control of weeds with plant pathogens. Testing potential of pathogens as bioherbicide agents. Bioherbicide-weed interactions.

Knud Mortense (Biocontrol section)
Biological control of weeds with plant pathogens. Testing the potential of pathogens on Canadian weeds as bioherbicides. Host range testing of exotic plant pathogens under quarantine conditions for introduction into Canada for control of introduced weeds.

AGRICULTURE CANADA: SASKATOON

Karen L.Bailey (Cereal Pathology)
Evaluation of germplasm (wheat and barley) for resistance to *Cochliobolus sativus*, to transfer new sources of resistance to agronomically adapted cultivars via wide hybridization, anther culture and conventional breeding techniques. To develop new methods of evaluating potential resistance. To study the genetics of resistance.

Lorne Duczek
Soil microbiology and cereal diseases with emphasis on common root rot of wheat and barley. Studies are done on antagonistic organisms to explore the possibility of biological control, and on seed treatment chemicals and on resistance. Field surveys of the incidence and severity of cereal diseases.

Bruce D. Gosse (Research Branch)
Etiology of crown rot of alfalfa, and effect of management on disease severity. Distribution and economic importance of, and plant resistance to, snow mold fungi.

Howard Harding
Resistance in wheat and barley to common root rot caused by *Bipolaris sorokiniania* (*Cochliobolus sativus*). *Bipolaris* systematics. *Septoria* disease on wheat.

Wendy McFadden (Ph.D.)
Epidemiology of foliage diseases (*Septoria* spp., *Pyrenophora tritici-repentis*) of winter wheat in Saskatchewan.

P. R.Verma
Epidemiology, chemical control and disease resistance studies on *Sclerotinia* stem rot *Sclerotinia sclerotiorum*, blackleg *Leptosphaeria maculans* and *Rhizoctonia solani* damping-off and root rot in canola/rapeseed.

B. K. Teo (Post. Doc.)
Effect of soil moisture on initiation and development of *Sclerotinia* stem rot, black leg, and *Rhizoctonia* in Canola.

H. R. Kataria (Post. Doc.)
Chemical control of *Rhizoctonia solani* damping-off and root rot on rapeseed/canola.

Jia Yang
Histopathology and mechanism of resistance to *Rhizoctonia solani* in *Brassica* species.

Xi Kequan
Chemical control of blackleg (*Leptosphaeria maculans*) in canola.

BRANDON UNIVERSITY: BRANDON

R. S. Jackson
Genetics and sclerotial physiology of *Botrytis* and related Sclerotiniaceae.

UNIVERSITY OF MANITOBA: WINNIPEG

Tom Booth (Dept. of Botany)
Epi- and endophytes of *Salicornia europaea*. Structural and functional variation in fungal assemblages (communities) on *S. europaea* and other inland halophytes. Influence of temporal and spatial conductivity gradients on halophytes (including *S. europaea*) and associated fungi. Interactions between fungal cells and halophyte tissues. Biogeographical studies of lignicolous marine fungi. Models of competition among lignicolous marine fungi. Psammon fungi of southern and central Manitoba. Taxonomic and ecological studies of uniflagellate aquatic fungi.

UNIVERSITY OF WINNIPEG

James A. Dowsett (Dept. of Biology, Adjunct Professor, Dept. of Botany, University of Manitoba)
Taxonomy, pathology and sporulation of the Ascomycetes and anamorphs.
Host-parasite interactions of the tree rusts (with Dr. J. Reid, U. of Manitoba). Nematode trapping fungi (with Dr. J. Reid). Ultrastructural investigations of the host-predator relationships and survey of specific Manitoba soil sites for the presence of predacious fungi.

Gildetta Esposito (M.Sc.)
A study of the distribution and identification of the species of nematode-trapping fungi occurring in Manitoba soils.

AGRICULTURE CANADA: WINNIPEG

J. Chong (Cereal diseases)
Virulence dynamics and epidemiology of *Puccinia coronata* f. sp. *avenae* (oat crown rust) in Canada. Genetics of pathogenicity in the fungus and genetics of resistance in common oats and in wild oat relatives and the transfer of resistance to common hexaploid oats. Ultrastructure and cytochemistry of rust fungus/host plant interactions.

D. E. Harder (Cereal diseases)
Virulence dynamics and epidemiology of *Puccinia graminis* f. sp. *avenae* (oat stem rust) in Canada. Genetics of pathogenicity in the fungus and genetics of resistance in common oats and in wild oat relatives and the transfer of resistance to common hexaploid oats. Ultrastructure, cytochemistry and cytology of rust fungus/host plant interactions.

W. K. Kim (Cereal diseases)
Biochemistry and physiology of rust fungal/cereal host interactions. Biochemical taxonomy of rust and smut fungi.

J. A. Kolmer (Cereal diseases)
Virulence dynamics and epidemiology of *Puccinia recondita* (wheat leaf rust) in Canada. Genetics of pathogenicity in the fungus and genetics of resistance in cultivated wheat and wild grassy relatives of wheat. Screening of breeders lines for resistance.

J. A. Marten (Cereal diseases)
Virulence dynamics and epidemiology of *Puccinia graminis* f. sp. *tritici* in Canada. Genetics of pathogenicity in the fungus and genetics of resistance in the host.

J. Nielsen (Cereal Diseases)
The occurrence of, and crop losses due to, the smuts of wheat and oats in western Canada. Genetics and taxonomic relationships between *Ustilago* spp. (smuts) pathogenic on wheat, oats and barley. Screening of world collections of cereals and of breeders lines for smut resistance.

R. Rohringer Cereal Diseases)
Biochemistry and physiology of rust fungal/cereal host interactions. Image analysis. Search for and isolation of virulence/avirulence gene products.

A. Tekauz (Cereal Diseases)
Assess occurrence of and losses due to fungal foliar pathogens of barley. Develop control measures by applying fungicides or determining the occurrence of and genetics of resistance in barley to *Pyrenophora teres* (net blotch) or in wheat to *Pyrenophora tritici-repentis* (tan-spot). Assess biotypes and their distribution in *P. teres*. Assess the occurrence of *Fusarium* head blight of wheat in Manitoba

P. L. Thomas (Cereal diseases)
Occurrence of and crop losses due to barley smuts (*Ustilago hordei* and *Ustilago nigra*). Genetics of *U. hordei* and *U. nigra*. Scanning electron microscopy of barley smut fungi.