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PESTS AND DISEASES OF *HEVEA* RUBBER AND THEIR GEOGRAPHICAL DISTRIBUTION

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The genetic material of the rubber tree, *Hevea brasiliensis* Muell. Arg. is susceptible to number of pests and diseases. As all the other agricultural crops the consequence in the number of diseases of rubber tree has increased tremendously with the domestication. Valuable literature on this subject is available since early 1900's (Petch, 1911, 1921; Sharples, 1936; Hilton, 1959; Rao, 1965, 1975 & Chee, 1976) and presently the "Plant Protection Group" of the International Rubber Research and Development Board (IRRDB) is actively engaged on world wide disease surveys (Allen & Cronin, 1994). The economic threat of each disease varies from one country to another, according to the microclimate within the same country and type of clone cultivated. Further, a considerable change has been observed in the relative importance of rubber diseases over the years. A classic example for this is the spread of *Corynespora* leaf fall (a disease considered as a minor disease in 1960's) in rubber plantations in Africa and Asia defoliating most of the outstanding rubber clones causing a tremendous economic loss. Several more examples of this nature are available from all neighbouring rubber growing countries (Anon, 1990).

New high yielding *Hevea* clones are introduced at very high frequencies each year in all rubber growing countries to increase productivity. When accepting high yielding new clones, there must also be preparations to tackle unforeseen problems like new disease epidemics. Hence, a knowledge on all pests capable of attacking *Hevea* genetic material is imperative to *Hevea* Pathologists and Quarantine Officers.

This article addresses the above issues and provides information in tabular form on (a) the pests and diseases of the rubber tree (Petch, 1921; Sharples, 1936; Hilton, 1959; Rao, 1965, 1975; Chee 1976; Kaiming, 1987; Peries, 1987; Anon, 1988; Review of Applied Mycology; Review of Plant Pathology, CAB CD-ROM) and (b) geographical distribution of economically important diseases (Chee, 1976; Chee & Wastie, 1980; Cronin, 1994; Allen & Cronin, 1994).

Table 1. *Important pests and diseases of* Hevea *in the world*

Fungal pathogens of *Hevea brasiliensis*

Alternaria sp.
Armillaria mellea
Ascochyta heveae
Botryodiplodia theobromae
Ceratocystis fimbriata
Cercospora heveae
Colletotrichum gloeosporioides
Corticium salmonicolor
Corynespora cassiicola
Curvularia pallescens
Cylindrocladium quinqueseptatum
Drechslera heveae
Fusarium spp.
Fusicoccum sp
Ganoderma philippii/pseudoferreum
Guignardia heveae
Helicobasidium purpureum/compactum
Marasmius sp.
Marasmius palmivorus/cyphella/equierinis
Microcyclus ulei
Nattrassia mangiferae
Oidium heveae
Periconia manihoticola/heveae
Pestalotiopsis palmarum
Phellinus noxius
Phomopsis heveae
Phyllachora huberi (Catacauma huberi)
Phyllosticta heveae
Phytophthora meadii/botryosa/palmivora/capsici
Poria hypobrunnea
Rigidoporus lignosus
Sclerotium rolfsii
Sphaerostible repens
Thanatephorus cucumeris
Ustulina deusta/zonata
Xylaria thwaitsii

Algal pathogens of *Hevea* rubber

Cephaleuros mycoidea

Insect pests of *Hevea* rubber

Valanga nigricornis	)
Brachy~rypes portentosus	) Grasshoppers & Crickets
Acheta testacea	
Coptotermes curvignathus	) Rubber tree termites (there are more types but they invade dead trees only)
Saissetia nigra	)
Pulvinaria maxima	)
Lepidosaphes cocculi	)
Saissetia spp.	)
Aspidiotus destructor	)
Hemiberlesia cyanophylli	) Scale insects
Hemiberlesia palmae	)
Parlatoria proteus,	)
Phenacaspis dilatata	)
Pinnaspis sp.	)
Pinnaspis theae	)
Ferrisiana virgata	)
Planococcus citri	)
Rastrococcus iceryoides	) Mealy bugs
Dysmicoccus sp.	)
Pseudococcus maritimus	)
Laccifer sp.	) Lac insects
Aleurocanthus spiniferus	) Clear wing bugs
Lygus macgillavryi	)
Eurystylus sp.	) True bugs
Halyomorpha picus	)
Sericothrips dorsalis	)
Taeniothrips minor	) Thrips

Tiracola plagiata	)
Amsacta lactinea	)
Miltochrista	)
Orgyia turbata	)
Mocis undata	)
Spodoptera	) Leaf eating & Mining caterpillars
Ophiusa	)
Clania variegata	)
Crematopsyche pendula	)
Thosea sinensis	)
Adoxophyes privatana	)
Hyposidra talaca	)
Euproctis suhnotata	)
Acrocercops sp.	)

Hemithea costipunctata	)
Euproctis suhnotata	) Flower feeding caterpillars

Erinyis ello	) Moths

Leptopharsa heveae	) Lace bugs

Homodes brachteigutta	)
Euproctis subnotata	) Bark feeding caterpillars
Acanthopsyche snelleni	)

Agromyza sp.	) Flies

Oecophylla smaragdina	)
Crematogaster dohrni	) Ants

Lachnosterna(Holotrichia) bidentata)	
Holotrichia insularis	)
Psilopholis vestita	)
Leucopholis rorida	)
Leucopholis nummicudens	) Cockchafers
Leucopholis tristis	)
Exopholis hypoleuca	)
Lepidiota stigma	)

Hypomeces squamosus	)
Phytoscaphus leporinus	) Weevils
Adoretus compressus	) Leaf eating beetles
Hemitarsonemus latus	) Yellow tea mites
Paratetranychus citri	)
Paratetranychus hawaiiensis	)
Paratetranychus	) Red spider & Scarlet mites
Eotetranychus	)
Eutetranychus orientalis	)

Nematodes of *Hevea* rubber

Meloidogyne incognita
Meloidogyne javanica

Molluscs of *Hevea* rubber

Mariaella dussumieri
Parmarion martensi
Vaginula sp.
Achatina fulica
Eulota similaris

Table 2. *Economically important pathogens of* Hevea *and their geographical distribution*

Pathogen	**Region**		
	Asia	***Africa***	***Tropical America***
Alternaria sp.	(-)	(-)	(+)
Armillaria mellea	(-)	(+)	(-)
Botryodiplodia theobromae	(+)	(+)	(+)
Cephaleuros mycoidea	(+)	(+)	(+)
Ceratocystis fimbriata	(+)	(+)	(+)
Colletotrichum gloeosporioides	(+)	(+)	(+)
Corticium salmonicolor	(+)	(+)	(+)
Corynespora cassiicola	(+)	(+)	(+)
Drechslera heveae	(+)	(+)	(+)
Fusarium spp.	(+)	(-)	(-)
Fusicoccum sp.	(+)	(-)	(-)
Ganoderma philippii	(+)	(+)	(+)
Guignardia heveae	(+)	(+)	(-)
Helicobasidium purpureum	(+)	(-)	(-)
Marasmius sp.	(+)	(+)	(+)
Microcyclus ulei	(-)	(-)	(+)
Oidium heveae	(+)	(+)	(-)
Pellicularia filamentosa	(+)	(-)	(-)
Periconia heveae	(+)	(-)	(+)
Phellinus noxius	(+)	(+)	(-)
Phyllachora huberi	(-)	(-)	(+)
Phytophthora spp.	(+)	(+)	(+)
Rigidoporus lignosus	(+)	(+)	(+)
Sclerotium rolfsii	(+)	(-)	(-)
Sphaerostilbe repens	(-)	(+)	(-)
Thanatephorus cucumeris	(+)	(-)	(+)
Erinyis ello (Insect pest)	(-)	(-)	(+)
Lephtopharsa heveae (Insect pest)	(-)	(-)	(+)

(+), present
(-), absent

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