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OCCURRENCE OF FUNGI IN RUBBER SEEDS OF MALAYSIA

Rubber, *Hevea brasiliensis* (Willd. ex Adr. de Juss.) Muell. Arg., is still the most important commercial crop in Malaysia. Collection and transport of rubber seeds from South America for breeding and research purposes, called for extra - precautionary quarantine measures, to ensure materials free from pathogens and pests in general and *Microcyclus ulei* (P. Henn) van Arx. in particular. Srivastava (1956) intercepted *Botryodiplodia theobromae* Pat. and *Phomopsis heveae* (Petch) Boidjn in rubber seeds from Malaysia and also described seed rot by *B. theobromae* (Srivastava, 1964). Urben *et al.* (1982) have recorded several fungi including *Alternaria* sp., *Botryodiplodia* sp., *Colletotrichum gloeosporioides* (Penzig) Penzig & Sacc., *Dothiorella gregaria* Sacc., *Phomopsis heveae, Phyllosticta heveae* Zimm. and *Phytophthora* sp. in rubber seeds. In Malaysia rubber seeds are largely collected from the fields during August to September and January to February as there are two flowering and seed fall seasons. Rubber seeds lose viability very fast. On removal of seed coats fungal contamination of the kernels is, at times, visible and the present investigation was undertaken in this context.

Fifteen samples of fresh seeds, belonging to September harvest, collected from Seafield Estate, Selangor (RRIM 605, PB 16, GG1), Prang Besar Estate, Selangor (RRIM 605), Damasara Estate, Pedang (PBIG), Merliman Estate, Malacca (623/A, 600/A, 701/C, 605/B), Panjam Estate, Negri Sembilan (PNG/CS, PB 86, RRIM 607, RRIM 623, RRIM 600) and Perak (RRIM 600, RRIM 605) were used. The seeds packed in polyethylene bags were stored in a refrigerated room and were tested using dry inspection, standard blotter and PDA plate methods (Anon., 1976). For incubation tests, seeds were pretreated with one per cent aqueous solution of $HgCl_2$ for 15 min., decoated, kernel splitted longitudinally and seed coat and kernel halves plated, one seed per plate. Plates were incubated at $26 \pm 2°C$ under 12 h of alternating cycles of near ultraviolet light and darkness and examined on the 8th and the 15th day of incubation. PDA test was abandoned after preliminary testing due to early rotting of kernels.

The percentage of lustrous seeds varied from 8-96, moderately lustrous 0–60 and dull 4–32 in different samples. In seed sample RRIM 600 from Perak, the percentage of lustrous seeds was the maximum (96) whereas 32 per cent seeds of 600/A from Malacca exhibited discolouration (dullness). Certain moderately lustrous and majority of dull seeds when decoated showed brown to black discolouration of kernels which, on incubation, yielded *B. theobromae* and *P. heveae*.

In standard blotter test, fungal growth developed rapidly on kernel halves but woody coat either remained barren or showed weak growth on the inner side. Twentyone fungi, including two actinomycetes, were encountered in the kernels. Among the known saprophytes, *Aspergillus flavus* (2–68%), *A. niger* (2–82%) and *Penicillium* sp. (4–42%) were common. Others, recorded in low percentages, were *Acremonium* sp., *Calcariosiphon* sp., *Clonostachys cylindrospora, Cylindrocladium* sp., *Fusarium semitectum, Geotrichum* sp., *Gleocladium* sp., *Mucor* sp., *Pecaelomyses* sp.,