THE GANODERMA SELECTIVE MEDIUM (GSM)

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Basal Stem Rot (BSR) caused by *Ganoderma boninense* is the most serious disease of oil palm in Malaysia. Isolation of the pathogen from diseased tissues, especially from infected roots, is difficult due to heavy contamination by soil inhabiting bacteria and fungi. It is important, therefore, that a medium selective for this fungus be developed to facilitate various studies on this disease.

COMPOSITION OF THE GSM

The GSM is prepared in two parts : A and B.

Part A

Bacto-peptone	5.0g
Agar	20.0g
$MgSO_4.7H_20$	0.25g
K_2HPO_4	0.50g
Distilled water, pH 5.5	900ml

Part B

Streptomycin sulphate	300mg
Chloramphenicol	100mg
PCNB, pure	285mg
Ridomil (25% WP)	130mg
Benlate - T20	150mg
Ethanol, 95%	20ml
Lactic Acid, 50%	2ml
Tannic Acid	1.25g
Distilled water, pH 5.5	80ml

Part A is stirred on a hot plate set at 100°C until dissolved, then autoclaved for 15 minutes.

Part B is stirred for about two hours at room temperature.

Part B is added to part A when the autoclaved medium has cooled down to 45°C - 50°C.

PERFORMANCE OF GSM

When attempts were made to isolate *Ganoderma* on standard media normally used for growing fungi, heavy contamination usually resulted despite prior surface sterilization of the infected tissues (*figure 1*). With GSM minus tannic acid *Ganoderma* could be readily isolated with minimal contamination (*figure 2*). The addition of tannic acid into the medium reduced the contamination

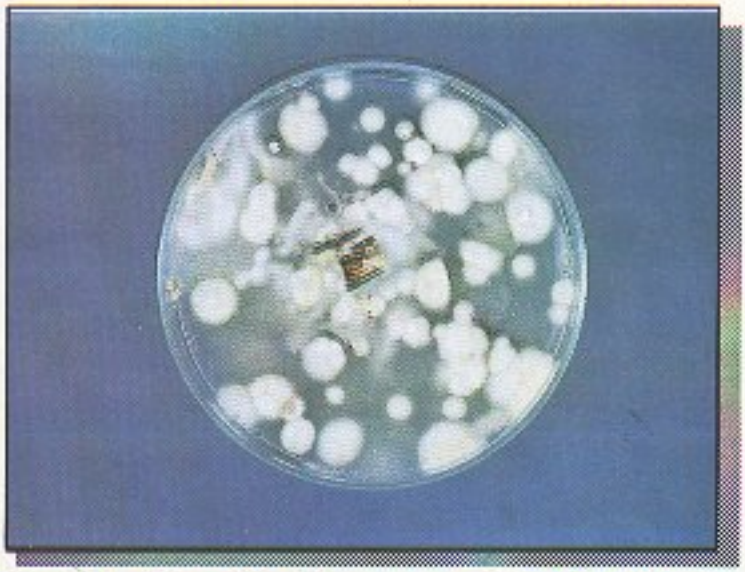

Figure 1: Isolation of Ganoderma on a standard medium. Note the heavy contamination by bacteria and fungi.

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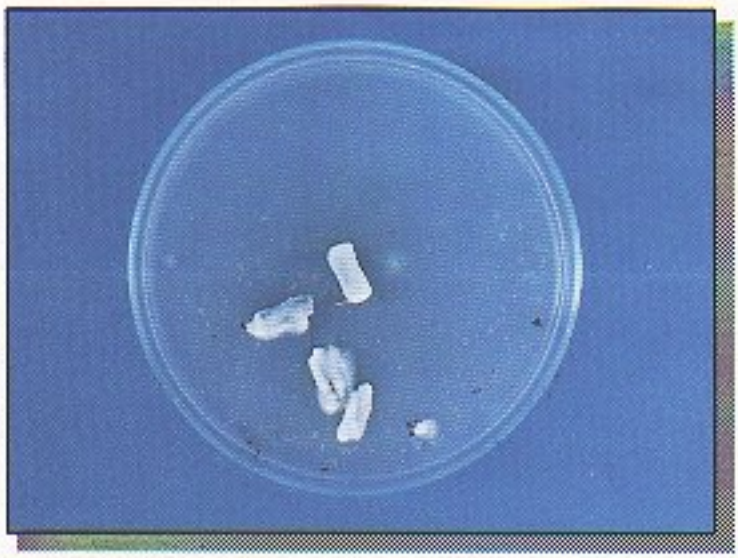

Figure 2: Isolation of Ganoderma on GSM minus tannic acid. Note the tremendous improvement in reducing contamination.

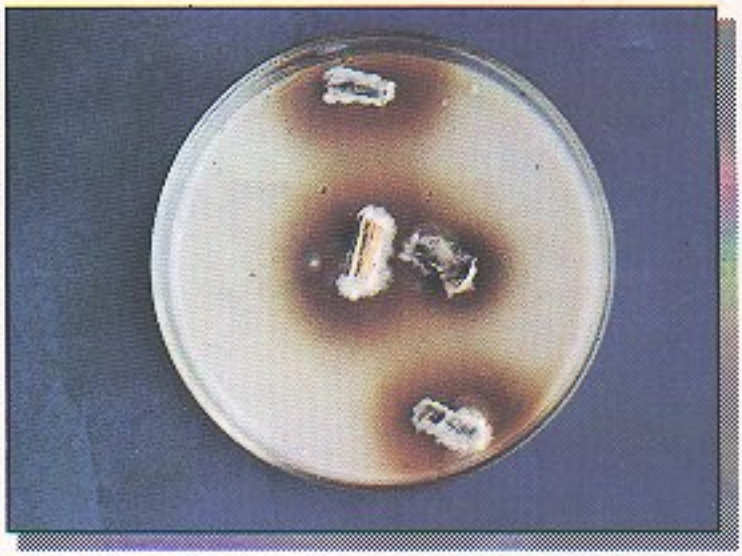

Figure 3: Isolation of Ganoderma on the complete GSM. Note the presence of a brown halo around the colony.

further while at the same time induced the formation of a brown halo around the colony (*figure 3*). This phenomenon made it easier to separate *Ganoderma* from any other contaminants. With GSM, prior washing and surface sterilization of the diseased tissues become unnecessary and transfer of the samples could be done right in the field (*figure 4*).

CONCLUSION

GSM provides a useful tool for isolating *Ganoderma* free from contaminants. The contents of fungicides and antibiotics are optimal to check growth of bacteria and other contaminating fungi while allowing *Ganoderma* to thrive. With the development of GSM, isolation of *Ganoderma* from infected roots which has hitherto remained a difficult task, becomes routine. The omission of the need for washing and surface sterilization of the samples, even when collected from soil, makes isolation of *Ganoderma* very convenient.

Figure 4: Using the GSM, prior washing and surface sterilization of the samples could be omitted. Transfer could be done right in the field.

It should be noted that GSM was developed for the isolation of *Ganoderma*. The pure culture of this fungus, once isolated, must be transferred to the standard media, such as PDA and MEA, for *Ganoderma* to assume its normal growth.

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