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WANWISA SIRIWATTANAMETANON: *Penicillium marneffei*: MOLECULAR TYPING, VIABILITY IN ACID MEDIUM, AND DRUG SUSCEPTIBILITY. THESIS ADVISORS:PANKORN IMWIDTHAYA, M.D., Dr.med., AMORNRUT LEELAPORN, Ph.D., JUREE JEARANAISILAVONG, M.Sc., SUPORN FOONGLADDA, D.V.M., Ph.D. 91 p. ISBN 974-664-950-7.

The PCR fingerprinting of 84 *Penicillium marneffei* isolates from Chiang Rai, Chiang Mai, and Bangkok was studied. DNA was extracted from cells by using physical rupture technique. A PCR-based random amplified polymorphic DNA (RAPD) analysis method was done by using random primer of 10 bases. By the calculation of PHYLIP program, RAPD patterns could be separated into 6 clusters designated I, II, III, IV, V, and VI. In Chiang Rai, the dominant clusters were III (26.3%) and VI (23.3%). In Chiang Mai, the majority isolates were cluster I (71.4%). In Bangkok, the dominant clusters were II (23%) and III (23%). Therefore the PCR fingerprinting method was found to be useful for epidemiological study of *Penicillium marneffei*.

In vitro survival of 10 *Penicillium marneffei* isolates in acidic media was determined. The results showed that all isolates were able to survive at pH 2 and 3 until 9 hours. At pH 1, 5 isolates were found to survive after incubation for 6 hours. However, the viability of these isolates was not observed after 9 hours of incubation. The ability of *Penicillium marneffei* to survive in acid media could support the possibility of ingestion as a route of infection.

In vitro drug susceptibility test by broth macrodilution to four antifungal agents against yeast form of *Penicillium marneffei* was carried out. The MIC range and MIC median of amphotericin B were 0.06-4 and 0.125-0.5 μg/ml, respectively. Nine of 64 isolates (14%) were found to be resistant to amphotericin B. The MIC range of fluconazole, itraconazole, and ketoconazole were 4-16, 0.03-0.125, and 0.125-0.5 μg/ml, respectively. MIC median of these drugs were 8, 0.03-0.06, and 0.125-0.5 μg/ml, respectively. The drug susceptibility test could provide a guide for clinicians in selection of an appropriate antifungal agents.