

VI Conclusions

1. Dimorphism of *P. marneffei* was temperature and nutrient dependent dimorphism, mold to yeast-like transformation required the temperature of 37°C and nitrogen compounds especially L-glutamine. Other nitrogen compounds that were less effective to induce yeast-like development were L-asparagine, L-arginine and (NH₄)₂SO₄, respectively.

2. The optimal concentration of glucose or maltose for transformation of *P. marneffei* ranged between 1 to 2 g% (w/v). Further increase of the concentration of each carbon source inhibited yeast-like production.

3. On enriched media (BHIA), transformation of *P. marneffei* from conidia began at 33°C. The optimal temperature for mold to yeast-like transformation ranged between 35 to 37°C. No growth was found at 41°C or above.

4. At 37°C, the neutral pH was found to favor the development into yeast-like cells in most isolates of *P. marneffei*.

5. CO₂ atmosphere had no effect on transformation of *P. marneffei*.

6. Female sex steroid hormone (17-beta-estradiol) did not have the inhibitory effect on transformation of *P. marneffei*, suggesting that this hormone did not participate in the establishment of penicilliosis marneffei.

7. Chitin localized in the regions of cell wall and in the septum of both mycelial cells and yeastlike cells of *P. marneffei*. Thus, at least chitin synthesis was the essential process in septum formation of this fungus.

8. Mold to yeast-like transformation of *P. marneffei* on BHIA at 37°C began with germination of conidia, elongation of hyphae and intraseptum formation which caused the formation of intraseptal cells or arthroconidia-like cells. After detaching from hyphae, the arthroconidia-like cells developed into the yeast-like cells which further divided by fission with one or two septa. Sequential transformation of *P. marneffei* conidia in human blood occurred in the same process as transformation on BHIA.

9. Numbers of mitochondria in mycelial cells or yeast-like cells ranged between 2 to 7 mitochondria per cell. Cells in mycelial phase had two types of mitochondria, the small type and the large type. The large typed mitochondria showed prominent cristae indicating of active respiration. Only the small type was found in yeast-like cells.