

## ABSTRACT

### *Mycobacterium leprae* EXISTENCE IN WATER AND SOIL OF LEPROSY ENDEMIC AREA IN EAST JAVA

#### EPIDEMIOLOGICAL SURVEY IN BRONDONG SUB DISTRICT LAMONGAN DISTRICT

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This study was established to detect the existence of *M.leprae* in water and soil of leprosy endemic area Brondong sub district Lamongan district East Java and studied the correlation with the leprosy patients.

Ninety water samples from well of leprosy patient's houses (case group) and non-patient's houses (control group), and ninety soil samples from surrounding the houses were collected from Brondong sub district. The samples can also divided by two regions, which is from Sedayu lawas village (area near the sea/beach area) and Brengkok village (relatively high area/farm area). PCR technique was performed to detect *M.leprae* DNA from the samples.

The result showed *M.leprae* exist in 24% (22/90) of the water samples and 4% (4/90) of the soil samples. Chi-Square analysis showed that there was statistically significant difference between positive DNA result of water samples and soil samples ( $p < 0,05$ ) and also that there was no statistically significant difference between positive DNA result of water samples in the case group and control group ( $p > 0,05$ ). The result of soil samples between case and control group also showed the same. Another result was no statistically significant difference between positive DNA results of water samples and patient's types (MB/PB) also treatment status of patients (RFT/under treatment) ( $p > 0,05$ ). According to two regions, there was statistically significant difference of positive DNA result of water samples between two villages ( $p < 0,05$ ). On the contrary, there was no statistically significant difference of positive DNA result of soil samples between two villages ( $p > 0,05$ ).

The information imply that possible transmission roles of the *M.leprae* bacilli mainly from the water of leprosy endemic area than the soil. The results also suggest that either case group or control group can consist *M.leprae* in their water sources and soil near their houses. Sub clinical cases, non-human reservoir of *M.leprae* and another risk factor of leprosy may explain this result. Methodologist reason can also explain the result because the experiment only done in leprosy endemic area. Environmental factor between two villages may influence *M.leprae* existence. However it still needs more investigation to explain the existence of live *M.leprae* and environmental factors influence.

**Key world : *M.leprae*, water, soil, endemic area, East Java.**