

Isolation, Screening and Identification of Frog Cutaneous Bacteria for Anti-Batrachochytrium dendrobatidis Activity

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Abstract : Mitigating strategies using symbiotic cutaneous bacteria is one of the major concerns in the conservation of amphibian population. *Batrachochytrium dendrobatidis* is the causative agent of chytridiomycosis associated with mass mortality and amphibian extinctions worldwide. In the Philippines, there is a lack of study on the cutaneous bacteria of Philippine amphibians that may have beneficial effects to ward off the deadly fungal infection. In this study, cutaneous bacteria from frogs were isolated and examined for anti-*B. dendrobatidis* activity. Eight species of frogs were collected at Mt. Palaypalay Mataas na Gulod National Park in Cavite, a site positive for the presence of *B. dendrobatidis*. Bacteria were isolated from the skin of frogs by swabbing the surfaces of the body and inoculated in Reasoner's 2A (R2A) agar. Isolated bacteria were tested for potential inhibitory properties against *B. dendrobatidis* through zoospore inhibition assay. Results showed that frog cutaneous bacteria significantly inhibited the growth of *B. dendrobatidis* in vitro. By means of 16S rRNA gene primers, the anti-*B. dendrobatidis* bacteria were identified to be *Enterobacter* sp., *Alcaligenes faecalis* and *Pseudomonas* sp. Cutaneous bacteria namely *Enterobacter* sp. (isolates PLd33 and PCv4) and *Pseudomonas* (isolate PLd31) remarkably cleared the growth of *B. dendrobatidis* zoospore in 1% tryptone agar. Therefore, frog cutaneous bacteria inhibited *B. dendrobatidis* in vitro and could possibly contribute to the immunity and defense of frogs against the lethal chytridiomycosis.

Keywords : *Batrachochytrium dendrobatidis*, cutaneous bacteria, frogs, zoospore inhibition assay

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