IS *PENICILLIUM CITRINUM* IMPLICATED IN SAGO HEMOLYTIC DISEASE?

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Abstract. Sago hemolytic disease (SHD) is an acute hemolytic syndrome affecting rural Papua New Guineans who depend on the starch of *Metroxylon sagu* as a staple carbohydrate. It is a suspected mycotoxicosis associated with fungal succession in stored and perhaps poorly fermented sago. Despite a mortality rate of approximately 25%, little is know about the disease. Recent studies have identified *Penicillium citrinum* as a possible candidate in the etiology of SHD. This is based on the frequency of isolation from sago starch and the hemolytic nature of the organism as demonstrated when cultured on sheep and human blood agar. A highly non-polar lipophilic *P. citrinum* fraction from C18 solid phase extraction demonstrated high hemolytic activity in a semi-quantitative assay using both mouse and human erythrocytes. When the red cell membrane proteins were subjected to sodium dodecyl-sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) separation, cleavage of protein band 3 and spectrin was demonstrated. This breach of major structural red cell proteins is consistent with the severe hemolysis found *in vivo*. Our findings warrant further investigation into the hemolytic activity of *P. citrinum* and its role as the etiological agent of SHD.

Key words: *Penicillium citrinum*, sago hemolytic disease, mycotoxicosis

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