**Evaluation of piper betle l. Extracts and its antivirulence activity towards p. Aeruginosa**

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**ABSTRACT**

The virulence factor of bacteria such as P. aeruginosa causes severe problems affecting human health and environmental quality. In this study, Piper betle undergoes an extraction process yielding extract to diminish the virulence factor of P. aeruginosa. The efficiency of Piper betle treatment on P. aeruginosa was measured using Pyoverdine assay. The different factors affected the Piper betle extract yield such as leaves to a solvent ratio (1:6 and 1:10), extraction method (maceration and sonication) and different solvents (methanol, ethanol, ethyl acetate and hexane) were tested. Pyoverdine assay illustrates ethyl acetate exhibits the lowest peak (OD630 = 0.2320) compared to methanol, ethanol and hexane due to the presence of a bioactive compound reducing the virulence factor. The ratio of 1:10 has a higher yield of 4.53±0.05 g and the ratio of 1:6 yields 2.86±0.05 g of extracts because of a better contact area. Maceration with agitation indicated the highest yield of 0.5210±0.05 g followed by maceration without agitation at 0.2660±0.05 g and 0.2792±0.05 g for sonication. The yield of Piper betle with different solvents showed the lowest yield is hexane 0.4741±0.05 g followed by ethyl acetate 2.4975±0.05 g, ethanol 3.7658±0.05 g and methanol 6.3331±0.05 g due to solvent polarity. This study aims to provide insightful knowledge of applied factor affecting Piper betle extracts and the ability of Piper betle as antivirulence and antibacterial agent against P. aeruginosa.

**KEYWORDS**

Antibacterial; Antivirulence; P. aeruginosa; Piper betle; Pyoverdine assay

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