

## **Identification of phenolic compounds and evaluation of antibacterial properties of Piper sarmentosum Roxb. against rice pathogenic bacteria**

### **ABSTRACT**

**Aims:** Piper sarmentosum Roxb. has a long history of medicinal usage and potential in treating many diseases and ailments. It is known for its medicinal properties and contains a variety of active chemical compounds. This study was conducted to identify and quantify the phenolic compounds of the leaf and fruit extract of P. sarmentosum, as well as their antibacterial activities.

**Methodology and results:** High Performance Liquid Chromatography (HPLC) was carried out to identify the phenolic compounds in the samples. Antibacterial performance of the samples was measured using agar well and disc diffusion assay, where its MIC values were then determined. After going through HPLC-UV, the major phenolic compounds identified in both extracts were tannic acid, gallic acid, quercetin and naringin. The leaf and fruit of P. sarmentosum exhibited moderate to strong antibacterial activity when tested against pythopathogenic bacteria with an inhibition range of 10.67-17.33 mm at 100 mg/mL.

**Conclusion, significance and impact of study:** The leaf and fruit extracts of P. sarmentosum were proven to have effective inhibitory effects on *Pseudomonas fuscovaginae* and *Xanthomonas oryzae* pv. *oryzae*, which are also the causal agents of sheath brown rot and bacterial leaf blight in rice. This is believed to be due to the presence of the phenolic compounds in these samples. In a subsequent study, the researchers are planning to apply a formulation, developed from the crude extract, in the glasshouse and field trial.

**Keyword:** Antibacterial activity; Phenolic compounds; Plant crude extracts; *Pseudomonas fuscovaginae*; *Xanthomonas oryzae* pv. *oryzae*