

# **In-vitro evaluation of anti-kinase, anti-phosphatase and cytotoxic activities of *Mikania micrantha* H.B.K. (asteraceae) from Malaysia**

## **Abstract**

*Mikania micrantha* H.B.K (Asteraceae) is a creeping weed with soft stem which is also known locally as Selaput Tunggul. Although being considered among worst Invasive Alien Weed (IAW) species in the world with less biological importance, it still has patronage from traditional practitioners as the remedy to cure insects or snake bite. This study reports other promising medicinal properties of this plant species. Dried leaves were extracted with various solvent systems, concentrated under reduced pressure and later evaluated for its anti-kinase, anti-phosphatase and cytotoxic activities. Both anti-kinase and anti-phosphatase assays targeted protein MKK1, MSG5 and PP1 in mutated yeast strains namely as MKK1P386, MKK1P386-MSG5, PAY704-1 and PAY700-4, respectively. The crude methanolic extract was observed as the only inhibitor for PP1 screening assay. Liquid-liquid partition of this extract has confirmed the chloroform partition exhibited potential activity against PP1. Further separation of this partition extract using column chromatography yielded 5 fractions namely as F1 to F5. Fraction F2 was later confirmed as the PP1 inhibitor, while fraction F1 was observed as toxic. MTT assay of this plant extract also showed good cytotoxic activity against HL60 cell line. This result has indicated that *M. micrantha* shows promise as the natural anticancer agent.