

## **Primary screening for natural inhibitors against eukaryotic signal transduction from local medicinal plants in Sabah, Malaysia**

### **Abstract**

Studies on eukaryotic signal transduction pathways have led to a variety of potential molecular targets for cancer therapy including Mitogen-activated Protein Kinase Kinase 1 (MKK1), Glycogen Synthase Kinase 3 $\beta$  (GSK-3 $\beta$ ) and Type 1 Protein Phosphatase (PP1). The protein kinases and phosphatases in the signal transduction pathways play a vital role in mitogen activated protein (MAP) kinase signal transduction, tumorigenesis, apoptosis, and cancer metastasis. In this study, genetically engineered yeast strains were used as a model in the search for potential inhibitors against these signalling elements. Eleven species of medicinal plants were selected from various locations in Sabah, Malaysia, extracted and tested against MKK, GSK-3 $\beta$  and PP1. Preliminary results showed the presence of potential MKK1 inhibitors in the crude extracts of *Alphitonia excelsa*, *Cordyline terminalis* and *Tinospora crispa*. However, no inhibitor was found against GSK-3 $\beta$  and PP1. The crude extracts of *Cordyline terminalis* was further fractionated using a bioassay guided fractionation and four partially pure active fractions were isolated.