

## **Fermentation activities of some new species of anaerobic rumen fungi from Malaysia**

### **ABSTRACT**

The fermentation activities of three new anaerobic rumen fungi, viz, *Neocallimastix variabilis*, *Piromyces spiralis* and *P. minutus*, and a *Caecomyces communis* isolate grown on straw and filter paper media were studied. *N. variabilis*, *P. spiralis* and *P. minutus* produced carboxymethylcellulase (CMCase), FPase (filter paper activity) and xylanases when grown on straw and filter paper media. *C. communis* produced only xylanases, The maximum production of all the enzymes was at 72 h of fungal incubation. On both media, *N. variabilis* showed the highest enzyme activities, followed by *P. spiralis* and *P. minutus*. Specific enzyme activities of the three fungal isolates in descending order of production were: Xylanase > CMCase > FPase when grown on straw medium; and CMCase > Xylanase > FPase > cellobiase when grown on filter paper medium. The major end-products of fermentation by the three new fungal isolates were acetate and formate. Ethanol and succinate were produced in low amounts and lactate was not detected. The absence of lactate in the end-products of fermentation observed in this study is the first such report.

**Keyword:** Fermentation; Anaerobic rumen fungi