

Enantiomeric differentiation of three key volatile compounds in three different palm wines (*Elaeis guineensis*, *Borassus flabellifer* and *Nypa fruticans*)

ABSTRACT

The contents and enantiomeric distributions of three chiral compounds, linalool, phenylethanol and acetoin, were investigated in three different palm wines (i.e. *Elaeis guineensis*, *Borassus flabellifer*, and *Nypa fruticans*). While *N. fruticans* and *B. flabellifer* wines were predominated with the (S)-enantiomers of linalool, phenylethanol and acetoin, respectively, *E. guineensis* wine contained acetoin primarily as (R)-enantiomers in addition to the (S)-forms of linalool and phenylethanol. Interestingly, results revealed a high level of acetoin in all wines with concentrations ranging from 2437 to 6611 $\mu\text{g/L}$ and an average ratio of S/R of 4:96–100:0. Moreover, noticeable differences occurred in the enantiomeric ratios and concentrations of enantiomers of the chiral compounds during storage. In all the wines, concentration of the (S)-form decreased during storage, whereas those of the (R)-form increased.

Keyword: Palm wine; Enantiomer differentiation; Linalool; Phenylethanol; Acetoin