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 µg/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