ABSTRACT

Structure Modifications of Pinostrobin from
Temu Kunci (*Boesenbergia pandurata* Roxb. Schlect) and
Quantitative Structure Activity Relationship
of analgesic on Mice (*Mus musculus*)

Temu kunci (*Boesenbergia pandurate* Roxb. Schlecht) is one of the ginger plants
that contain pinostrobin. It determined as an anti-inflammatory and analgesic
activities through inhibition of COX-2 enzymes. The objective of this research
was to obtain pinostrobin from *Boesenbergia pandurata* Roxb. Schlect and
pinostrobin derivatives of acylation reactions between pinostrobin and acyl
chloride derivatives. The structure modifications of pinostrobin were obtained by
Schotten-Baumann method through nucleophilic substitution reactions between
pinostrobin and acyl chloride derivatives. The investigation of structure
modifications of pinostrobin from this plant has demonstrated the present of
pinostrobin acetate, pinostrobin propionate, pinostrobin butyrate, and pinostrobin
pentanoate based on the spectrometric analysis such as IR, NMR, and MS. All
compound were evaluate for their analgesic activity by writhing test models on
mice (*Mus musculus*). The test showed pinostrobin derivates possessed higher
analgesic activity compared to pinostrobin. QSAR studies showed the best
correlation between electronic parameter (*E*$_{\text{total}}$ and RS) and steric parameter
(MR).

**Keyword:** Structure modification, *Boesenbergia pandurata*, pinostrobin,
analgesic activity, QSAR