

#### Abstract:

The sesquiterpene alpha-farnesene and its metabolites have been implicated in the development of superficial scald development in apples. HPLC analysis of hexane-soluble hypodermal tissue extracts showed nearly three-fold lower level of alpha-farnesene in scald-developing tissues. Several other components were present in the hexane extracts, some of which have been identified as potential catabolites of farnesene. The content of alpha-farnesene was seven-fold higher in the hypodermal tissue as compared to the epidermal wax layer. The levels of the putative alpha-farnesene catabolite, 6-methyl-5-heptene-2-one (MHO), were very low in both normal and scald-developing tissues and detectable only through monitoring the selected-ion profile. To evaluate the potential effects of alpha-farnesene and its catabolites on membrane properties, several authentic components that include alpha-farnesene, MHO and methyl heptenol (MHOL) were incorporated into the isolated microsomal membrane of apple skin tissues and phase transition properties determined. There was no significant difference in the phase transition temperature between the membrane from normal apples and scald-developing apples. As well, addition of alpha-farnesene or its catabolites to the normal membrane did not change the phase transition temperature or energy of activation. The results suggest that alpha-farnesene or its metabolites do not possess membrane-destabilizing properties.