



CHAPTER V

CONCLUSION

At the present, silkworm rearing becomes one of the important industries. Waste from silkworm cultivation such as silkworm pupae and silkworm excreta, which is normally discarded unworthy, has been investigated for its alternative uses apart from being a fertilizer for plants or animal feed. In this work, silkworm excreta were selected to study of chemical constituents and bioactivity.

Three valuable compounds were isolated from crude silkworm excreta extract obtained by using acetone as an extracting solvent. The structure determination of the chemical constituents was done by comparing the spectroscopic data with previous reports.

The first compound SWF1 (7.5 mg, $10.84 \times 10^{-3}\%$ based on dried weight of excreta) was identified as tritriacontanol which is a fatty alcohol. The compound has not been reported the finding in silkworm excreta elsewhere before the present study.

The two latter compounds, SWF2 (15.9 mg, $23.06 \times 10^{-3}\%$ based on dried weight of excreta) and SWF3 (3.1mg, $4.50 \times 10^{-3}\%$ based on dried weight of excreta), were identified as lupeol and β -sitosterol, respectively. Both compounds were found in mulberry leaves in the previous report. This finding indicates that the compounds were from silkworm's feed and remained after the digestion and excretion process.

Lupeol is the triterpene which recognized as a potent anticancer while β -sitosterol is a common sterol found in plant and known as beneficial sterol for human.

Free radical scavenging and tyrosinase inhibitory activity of isolated compounds were observed. SWF1, SWF2, and SWF3 exhibited low activity in DPPH assay which was employed to evaluate the free radical scavenging activity and IC_{50} could not be determined. Also, all three compounds were weak in tyrosinase inhibition.

Silkworm excreta extract was proposed to use as cosmetic ingredient. The bioactivity of the extract and application in the model cosmetic was observed.

In contrast to the activity of isolated compound SWF1, SWF2, and SWF3, the crude acetone extract showed very high inhibitory activity (92%) on DPPH assay but had low tyrosinase inhibitory activity, the IC_{50} could not be determined.

For the information above, the present investigation leads to new utilization of the silkworm excreta as a source of fascinating bioactive compounds. The unworthy agricultural waste would become more valuable. Afterward, the farmer in rural area would gain the additional income from silkworm excreta the most abundant waste in sericulture.