V. CONCLUSION

Sugarcane contained many waxy materials, including policosanols and long chain aldehydes. Sugarcane wax components could be separated and analyzed with thin layer chromatography, high performance liquid chromatography and gas chromatography techniques. This study gives information of functional compounds potentially contained in sugarcane and its product Kokuto, an Okinawan brown sugar.

The study showed a simple and effective extraction method for policosanols and long chain aldehydes in sugarcane and Kokuto, those were solid liquid extraction with a mixture of hexane, methanol (20:1 v/v) for policosanol; and a mixture of chloroform, methanol (2:1 v/v) for long chain aldehyde. Octacosanol and octacosanal were the major component in the whole extracts, analyzed by GC-FID and GC-MS. Sugarcane rinds contained 53–60% aldehydes, sterol esters and wax esters, 32–40% alcohols, 2–4% triacylglycerols, 2–3% acids, and 0.6–0.9% sterols, analyzed by HPLC-ELSD. The wax contents and compositions of the samples analyzed varied significantly with the sugarcane cultivars.

This study discovered that policosanol and long chain aldehyde compositions of sugarcane parts varied significantly, as same as, with its contents in the rind parts of sugarcane cultivars. Hand peeled cane rinds contained wax components higher than in cane piths, i.e. cq. 500 mg policosanols and 600 g aldehydes per 100 g sample (Ni 22 cultivar). The amount of sugarcane surface wax produced is dependent on the varieties and growth condition. Increasing of aldehyde compounds were found higher than alcohol compounds.
Policosanol and long chain aldehyde could also be found in Kokuto. Their contents corresponded to their production system. Those in Kokuto A could reach 85 mg policosanols and 8 mg aldehydes per 100 g sample, whereas Kokuto Non-A 8–12 mg policosanols per 100 g sample and negligible amount of aldehydes. The policosanol and long chain aldehyde compositions of the samples analyzed varied significantly with Kokuto types.