4. CONCLUSION AND SUGGESTIONS

4.1. Conclusion

The chemopreventive effect of Jaboticaba extract on DMH-induced Sprague-Dawley rats were confirmed by inhibiting ACF formation (data not shown). A change in gut microbiota composition was observed, where *Ruminoccocus* 1, *Lachnospiraceae* NK4A136 and *Faecalibacterium* abundance was higher on treated groups, especially on group treated with low Jaboticaba dose. Those group of bacteria was known as a short chain fatty acid producer. In opposition, *Lachnoclostridium* population (colorectal cancer biomarker) was inhibited. Short chain fatty acid production was slightly affected with lower concentration of butyrate on cecum of cancer control group ($p < 0.05$). However, no change on acetate and propionate concentration ($p < 0.05$) nor there was significant difference between normal control and Jaboticaba-treated group, regardless of the applied dosages ($p < 0.05$). In conclusion, the chemopreventive potential of Jaboticaba extract was through its modulating effect on gut microbiota composition. It was possible that the change in microbiota composition may affect SCFA concentration, but this was not observed on the research.

4.2. Further Study

Further research may analyze the effect of Jaboticaba in low dose for longer term to gain a more significant change in the composition, therefore it may give a clearer change in the gut microbiota composition. Reanalyzing the effect on medium and high dose of Jaboticaba can be done as well since ACF count reveal stronger ACF inhibition on higher dose. In term of short chain fatty acid, observing its production in the media cultured by microbiota of cecum digesta from healthy, DMH-induced and Jaboticaba treated rat to get much accurate result.