

# **The effects of uncommonly used horticultural plant materials on the diversity of gut microbiota and lipid peroxidation in mice model**

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## **Abstract**

The risk of colorectal cancer (CRC) is increasing all over the world as people eat meat and meat products more and more. Human health is highly related to their diet which influences not only disease risk but the gut flora. Consuming heme-iron present in red meat may by inducing fat peroxidation increase the risk of CRC. The diversity of gastrointestinal microbiota can provide insight into the health condition of an individual. In this study, as a continuous study of Burri et al (2017), olive polyphenols (OPP), sea buckthorn leaf extract (SBT), onion skin extract (OS), summer savory freeze dried powder (SS), and black currant juice press cake extract (BLC) were examined to discover their health impacts, since antioxidants and polyphenols prevent lipid peroxidation in the gut and improve gut microbiota. The gut microbiota diversity of every mouse sample was analyzed by Terminal Restriction Fragment Length Polymorphism. OPP, SBT, OS, SS, or BLC reacted more positively with small intestine microbiota than colon. OS and SS most effectively interacted with small and large intestinal bacteria. The diversity indices of small intestine increased up to 153% compared to the group only taken meatballs, while -0.6 to 45% was increased in colon. As the major secondary products of lipid peroxidation is malondialdehyde (MDA), the levels of malondialdehyde of small intestine and colon were measured. All of OPP, SBT, OS, SS, and BLC are considerably preventive from producing MDA. Onion skin extract showed a great impact on both hindering fat peroxidation and interacting with gut microbiota.

**Keywords:** *Gut microbiota, gut microbiota, antioxidant, lipid peroxidation*