

**EFFECT OF STORAGE CONDITION ON THE YIELD OF
ESSENTIAL OIL AND SENSORY PROPERTIES OF
VALUE ADDED TEA PRODUCTS**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture

Uva Wellassa University

In partial fulfillment of the requirements for the award of
Bachelor of Science in Tea Technology and Value Addition

BY

THIRUCHCHENTHINATHAN SITHAMPARABARATHY

Tea Technology and Value Addition Degree Programmed

Faculty of Animal Science and Export Agriculture

Uva Wellassa University of Sri Lanka

2019

ABSTRACT

Tea is the most popular beverage in the world next to water. Tea plays a major roll in Sri Lankan economy. In current scenario, value added products becoming popular and most of the foreign peoples like to drink flavored teas. Ginger is widely used in tea value addition because of the pleasing taste and health benefits of its essential oil. Nevertheless, sensory and chemical properties of ginger are deteriorated during the storage. This research was conducted to study the effects of storage temperature and duration and storage form of ginger on the essential oil yield and the sensory properties of ginger. Two different forms of ginger: dried Rhizomes and ginger cut were taken and their oil yield and sensory properties were studied. These samples were stored at three different temperatures (4°C, 16°C & 32°C) for two months. Oil yield and sensory properties of these samples were studied monthly during the storage. Oil yields of the samples were analyzed by steam distillation. Sensory properties such as aroma, taste, color and overall acceptability of the samples were studied by ten trained panelists using five point Hedonic scale. Data on oil yield was subjected to Analysis of Variance and Mean separation by LSD. Sensory data was analyzed by Friedman test. Statistical analyses were done using Minitab 17 software. According to the results, temperature and storage duration significantly ($P < 0.05$) effect on the oil yields of both ginger rhizomes and cuts. Oil yield of both ginger rhizomes and cuts stored at all three temperatures reduced with storage time. Nevertheless, reduction of oil yield of both ginger rhizomes and cuts significantly higher at 32°C storage temperature. Further, significantly higher reduction in oil yield during the storage was observed in ginger cuts than in ginger rhizome. Ginger rhizomes and cuts stored at 4°C received higher ranks for their sensory attributes; color, taste, aroma and overall acceptability. With these findings it can be concluded that storing ginger as rhizomes at 4°C will best preserve its sensory and other properties. .

Key words: Essential oil, Yield, Storage temperature, Ginger