I prefer:

□ ORAL presentation

☒ POSTER presentation

**Antineoplastic Potential of Phytochemical Terpenoids Derived from *Zingiber cassumunar* Roxb. on Malignant Melanomas**

Peerawit Chongrattanameteekul1\*, Thanawut Mangkang1, Chen-Si Lin2, Phongsakorn Chuammitri1, Pitchaya Matchimakul1, Chompunut Lumsangkul3,4, Raktham Mektrirat1,4,5,6

\*lead presenter

1 peerawit\_ch@cmu.ac.th, Veterinary Academic Office, Faculty of Veterinary Medicine, Chiang Mai University, Muang, Chiang Mai 50100, Thailand.

2 Department of Veterinary Medicine, School of Veterinary Medicine, National Taiwan University, Taipei 10617, Taiwan, ROC

3 Department of Animal and Aquatic Sciences, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand

4 Plant Bioactive Compound Laboratory, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand

5 Research Center for Veterinary Biosciences and Veterinary Public Health, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai 50100, Thailand

6 Center of Excellence in Pharmaceutical Nanotechnology, Faculty of Pharmacy, Chiang Mai University, Chiang Mai 50200, Thailand

**Abstract:**

**Background/Objective:** Melanoma is one of the most aggressive and metastatic types of neoplasms in dogs. The current systemic treatment of melanomas, especially chemotherapy, usually comes with many side effects. Plai, a medicinal plant, contains essential oil which has been reported to possess anticancer properties. The aim of this study was to determine the chemical composition and antioxidant properties of Plai essential oil, as well as its antineoplastic effects against canine melanoma cell lines.

**Methods:** Chemical composition of the essential oil was analyzed using gas chromatography-mass spectrometry (GC-MS). The antioxidant activity was assessed by DPPH, ABTS, and FRAP assays. To determine the antiproliferative effect using the CCK-8 assay, Plai essential oil with concentrations ranging from 0.003125 to 0.1%v/v was exposed to four original canine melanoma cell lines (CM01, M2, M5, and KMeC) for 24 to 72 hours. Experiments were conducted in triplicate and repeated biologically.

**Results:** The major phytoconstituents of Plai oil were sabinene and terpinen-4-ol, which showed satisfactory antioxidant capacity. The average IC50 of Plai essential oil against canine melanoma cell lines was 0.0141 with a standard deviation of 0.0014. No significant differences were observed among the four different canine melanoma cell lines treated with Plai oil. Moreover, there appeared to be only concentration manner, as no statistical differences were observed at each different time point (*p* > 0.05).

**Conclusion:** The *in vitro* anticancer effects of *Z. cassumunar* Roxb. observed across different canine melanoma cell lines highlight its potential as a promising therapeutic candidate. However, further study on the mechanisms of cell inhibition and the selectivity of cytotoxicity is still essential for evaluating the use of Plai oil as an alternative treatment for canine melanoma or other cancer cells in the future.

**Keywords:** antineoplastic effect, antioxidant, dogs, melanoma, Plai