

ABSTRACT

MECHANISM OF CHEMOPREVENTION OF THE DEVELOPMENT OF MICE (*Mus musculus*) ORAL SQUAMOUS CELL CARCINOMA IN THE ADMINISTRATION OF COCOA BEANS ETHANOL EXTRACT THROUGH ENHANCEMENT OF CELLULAR IMMUNITY

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Background: Head and neck cancer ranks to six from all over the cancer common in human. 48% of head and neck cancer is in the oral cavity and 90% is oral squamous cell carcinoma. Cancer prevention can be done by chemoprevention. The control of transformed cell growth can be done by using polyphenol which is one of the cocoa (*Theobroma cacao*) content. Cellular immunity plays a role in the control of growth and development of transformed cells.

Objective: to prove cocoa beans ethanol extract can increase IFN γ , CD95L, granzyme B, caspase-8, apoptosis, and decrease Ki67, and to clarify the mechanism of OSCC chemoprevention by cocoa beans ethanol extract.

Material and methods: This research used 20 Balb/c mice divided into 5 groups. K0= normal control, K1= negative control, K2= given benzopyrene and 4mg/30BW/po/day extract, K3= given benzopyrene and 8mg/30gBW/po/day extract, K4= given benzopyrene and 16mg/30gBW/po/day extract. Cheek mucosa were biopsied and be used to IFN γ , CD 95L, granzyme B, caspase-8, apoptosis, and Ki 67 expression examination by immunohistochemistry and tunnel assay. **Results:** there were significant differences on IFN γ ($p=0.002$), CD 95L ($p = 0.000$), granzyme B ($p = 0.000$), caspase-8 ($p = 0.002$), apoptosis ($p = 0,018$), and ki 67 ($p = 0.002$).

Conclusion, these data indicated that the ethanol extracts of cocoa beans could increase the expression of IFN γ , CD 95L, granzyme B, caspase-8, and the number of apoptosis, as well as lowering the expression of Ki67. The mechanism of OSCC chemoprevention were through perforin/granzyme pathway of apoptotic by increasing of CD 95L and Granzyme B and through decreased expression of Ki67 directly.

Keyword: *Theobroma cacao*, transformed cells, IFN γ , CD95L, granzyme B, caspase-8, apoptosis, Ki67