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 IFNγ, CD95L, grandzyme 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, grandzyme B, caspase-8, apoptosis, and Ki 67 expression examination by immunohistochemistry and tunnel assay. Results: there were significant differences on IFNγ (p=0.002), CD 95L (p = 0.000), grandzyme 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 IFNγ, CD 95L, grandzyme B, caspase-8, and the number of apoptosis, as well as lowering the expression of Ki67. The mechanism of OSCC chemoprevention were through perforin/grandzyme pathway of apoptotic by increasing of CD 95L and Grandzyme B and through decreased expression of Ki67 directly.

Keyword: Theobroma cacao, transformed cells, IFNγ, CD95L, grandzyme B, caspase-8, apoptosis, Ki67