

## ABSTRACT

Sari, Desie Suci Permata. 2014. Macerated *Eugenia polyantha* Leaves, via modulation of NF- $\kappa$ B, showed better anticancer properties than *Piper crocatum* alone or in combination. Final Assignment, Program Study of Pharmacy, Medical Faculty, Brawijaya University. Supervisors : Dra. Diana Lyrawati, Apt, MS, PhD.

Cervical cancer is the third most diagnosed cancer and the fourth leading cause of cancer death in females in the world. More than 85% of these cases and deaths occur in developing countries in low human resource settings, important to social and economic stability. There has been a vast growth of research focusing on single herbal medicine to treat cancer. However, in reality, Indonesia people have a habit to combine various plants despite unclear scientific and clinical data. This study aims at investigating (1) which extraction method of *Eugenia polyantha* or *Piper crocatum* that yield the best anticancer activity, (2) Antiproliferation activities of their single and in combination extracts, and (3) its pathway on HeLa cells. The anti-cancer property of the extract were evaluated by MTT assay for viability and immunohistochemistry of NF- $\kappa$ B for anti-cancer mechanism. This study could be concluded that (1) anti-cancer activity are higher in maceration extracts than those in soxhlet, (2) either extract of *Eugenia polyantha* or *Piper crocatum* alone showed better anti-proliferation activity than combination of both. Macerated *Eugenia polyantha* at the concentration 10.16  $\mu$ g/mL showed best anti-proliferation activity (40.46%,  $p=0.041$ ), and (3) the apoptosis pathway was via increased NF- $\kappa$ B activation.

**Keywords** : HeLa cell, *Eugenia polyantha*, *Piper crocatum*, single, combination, NF- $\kappa$ B.