

**ROBUSTA COFFEE BEANS INCREASE LEVELS OF TNF- α AS A RESPONSE
TO *Streptococcus mutans***

By:

Pujiana Endah Lestari¹, I Dewa Ayu Susilawati², I Dewa Ayu Ratna Dewanti³, Roedy Budirahardjo⁴.

Department of Biomedical Science^{1,2,3}, Department of Pedodontia⁴, Faculty of Dentistry, Jember University

Correspondence: I Dewa Ayu Ratna Dewanti, Address: 37th Street Kalimantan, Jember. Phone: 081249450970. Email: idewadewanti@yahoo.com

ABSTRACT

Introduction. Currently immunomodulator being a topic of conversation in the world of health is used as a prevention or treatment of various diseases. Coffee beans suspected potentially be immunomodulator. The immune response of dental caries as fagocytosis, IL-1 β , IL-1 α and TNF- α . *Streptococcus mutans* is the primary cause of dental caries. **Aim.** The purpose of the research was to analyze of modulation of TNF- α robusta coffee beans against *S. mutans*. **Method.** Peripheral blood sampling of healthy people as much as 6 cc then mixed with anticoagulants (heparin). Ficoll-Hypaque centrifugation were suspended in medium RPMI 1640. The cells are placed on a microtiter plate and washed 4 times with medium. Furthermore monocytes obtained treated in accordance groups. The control group (K0): untreated. KP1: monocytes + *S. mutans*. KP2: monocytes + coffee 2.5% + *S. mutans*. KP3: monocytes + coffee 5% + *S. mutans*, KP4: monocytes + coffee 10% + *S. mutans*. After incubated 24 hours, fixed with methanol. Phagocytic activity were analyzed under a light microscope with 400x magnification per 100 monocytes. Supernatant is taken for analysis of TNF- α by ELISA technique. Data were analyzed using ANOVA followed by LSD test. **Results.** The analysis of one-way ANOVA on all research groups was showed significant value 0.002 ($p < 0.05$). The analysis of LSD was showed a significantly different with the control group (K0) only on the KP4 group which has significant value 0.000 ($p < 0.05$). **Conclusion.** The steeping of robusta coffee beans in concentration of 10% was increased the level of TNF- α produced by monocytes that was exposed to *S. mutans*.

Keywords: coffee; caries; *S. mutans*; the immune response; immunomodulatory.