# ABSTRACT

## EFFECT OF PROBIOTIC AND VITAMIN $B_1$, $B_6$, $B_{12}$ SUPPLEMENTATION ON PLASMA LEVELS OF IFN-γ AND IL-6 IN ACTIVE TUBERCULOSIS PATIENT (Study at Department of Pulmonology and Respiration Medicine, Airlangga University Teaching Hospital and Community Health Center in Surabaya)


## ABSTRACT

**Background :** The supplementation of probiotics and vitamin $B_1$, $B_6$, $B_{12}$ had been shown to provide benefits for improving the immune system during respiratory infections, such as pneumonia and TB. The cytokines are part of immune system that functions as the TB pathomechanism, IFN-γ and IL-6 are cytokines that have local and systemic effects to eliminate tuberculosis bacteria.

**Objectives :** To analyse the effect of probiotics and vitamin $B_1$, $B_6$ and $B_{12}$ supplementation on plasma levels of IFN-γ and IL-6 in TB patients with first line oral antituberculosis.

**Method :** This study was an observational, pre-post test randomised control within November 2016 until January 2017 and it had been reviewed by the Ethics Committee of Dr Soetomo Teaching Hospital. Plasma levels were determined by ELISA method. Blood samples were taken as much as three times before treatment, after a month and two months.

**Result :** There were 22 samples which were divided into the control group (11 samples) and the treatment group with supplementations (11 samples). Patients characteristic were homogeneous between both groups. After a month observation, the mean level of IFN-γ increased in both groups ($p = 0.18$) then decreased dramatically especially in treatment group ($p = 0.01$). The mean levels of IL-6 during the study trend to decreased in both groups such as after a month in the control group ($p = 0.02$) and treatment group ($p = 0.04$).

**Conclusion :** The mean level of IFN-γ was increased greater, and declining trend of IL-6 were lower in patients using supplementation after a month.


**Keywords :** IFN-γ, IL-6, oral antituberculosis, probiotics, supplementation in TB patient, tuberculosis, vitamin B