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ANTI-ADHERENCE POTENTIAL OF IMMUNOGLOBULIN Y *AGGREGATIBACTER ACTINOMYCETEMCOMITANS* AGAINST *AGGREGATIBACTER ACTINOMYCETEMCOMITANS* ADHESION

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ABSTRACT : ***Aggregatibacter actinomycetemcomitans*** **is the main cause of aggressive periodontitis. Immunoglobulin Y (Ig Y) is the main antibody in poultry, reptiles, lungfish and can be found in chicken egg yolk. IgY has been proven effective to prevent against several pathogens that harm towards animals and humans. This study purpose is to investigate that Ig Y*A. actinomycetemcomitans*** **have an anti-adherence potential against *A. actinomycetemcomitans*** **adherence on epithelial cell as an alternative prevention of periodontitis. The sample group was divided into 8 groups, 1 control group and 7 treatment groups. The control group consisted of a control group of *A. actinomycetemcomitans*. The number of bacteria attached to 100 enterocyte cells was calculated to determine the adhesion index. IgY in egg yolk can significantly reduce the adhesion index of *A. actinomycetemcomitans*** **bacteria in each concentration group. IgY A. *actinomycetemcomitans*** **have an anti-adherence potential against *A. actinomycetemcomitan*s adherence in epithelial cell.**

Key words : Immunoglobulin Y, egg yolk, *Aggregatibacter actinomycetemcomitans*, periodontitis, medicine.

INTRODUCTION

Periodontal disease is one of the dental and oral health problems that has a high prevalence in the community (Larindy *et al*, 2015). The prevalence of periodontal disease in Indonesia is quite high at 96.58% (Nandya *et al*, 2012). According to the World Health Organization (WHO), since 2004 periodontal disease is the top ten diseases in the world that causes death (Larindy *et al*, 2015). Indonesia has a prevalence of aggressive periodontitis which is between 3% and 10% (Widjaja *et al*, 2013). Based on data obtained from research at the periodontics clinic of the Faculty of Dentistry, Airlangga University, it is known that the prevalence of aggressive periodontitis in 1991 was 9% and in 2002 it increased to 13%, this shows that the prevalence of patients with aggressive periodontitis increases every year (Setyari *et al*, 2014).

Aggressive periodontitis is periodontal disease with characteristic of early onset, which generally attacks individuals under 30 years old, although sometimes, it also attacks individuals over 30 years old (Widjaja *et al*, 2013). The pattern of bone loss and attachment around the teeth is very rapid, including very significant bone damage and loss of attachment in a short time. Aggressive periodontitis is classified into two, namely Localized Aggressive Periodontitis (LAP) and Generalized Aggressive Periodontitis (GAP) (Sasmita *et al*, 2014).

Major bacteria found in aggressive periodontitis is *Aggregatibacter actinomycetemcomitans* (*A. actinomycetemcomitans*). *A. actinomycetemcomitans* is an anaerobic gram-negative bacterium known that is found in the human oral cavity such as in the gingival plaque, subgingival plaque, saliva, gingiva, tongue, and tonsils, also attached in gingival crevicular epithelium (Baik *et al*, 2013; Raja *et al*, 2014). *A. actinomycetemcomitans* has various virulence factors to colonize and surive in the oral cavity which are divided into factors that support colonization, factors that damage host tissues, and factors that interfere with host defense (Velusamy*et al*, 2016; Gholizadeh *et al*, 2017).

The ability of various bacteria to attach to the host surface is an important characteristic for colonizing and is the initial stage of the infection process (Kachlany *et al*, 2001; Kundera *et al*, 2014). The mechanism of bacterial adhesion consists of two stages, non-specific adhesion and specific adhesion. Non-specific adhesion is