The ability of IgY to recognize surface proteins of Streptococcus mutans by using western blot method

Abstrak:

Background: Streptococcus mutans are gram positive bacteria classified into viridians group, and have a role in pathogenesis of dental caries. Its adhesion to the tooth surface is mediated by cell surface proteins, which interact with specific receptor located in tooth pellicle. Glucan binding protein, Glukosyltransferase, and antigen I/II are basic proteins of S. mutans, which have a role in initiating the interaction. A previous study showed that chicken's IgY can interfere the interaction. Purpose: The objective of this study is to assess the ability of IgY in recognizing the surface molecule of Streptococcus mutans expressed by various serotypes (c, d, e, f) and a strain derived from IPB, Bogor. Method: Western blot was used as a method to determine such capability. Result: The result showed that IgY has a potency to recognize antigen I/II, but not the other proteins on the cell surface of all bacteria tested. Conclusion: The ability of IgY to bind the surface protein, antigen I/II, indicates that this avian antibody could be used as a candidate for anti-adhesion in preventing dental caries.

Keyword:

IgY, Streptococcus mutans, adhesion, surface proteins, and dental caries