

**DETECTION OF BIOFILM PROTEINS FROM *Aggregatibacter actinomycetemcomitans* INDUCED BY GLUCOSE, LACTOSE, SOY PROTEIN, AND IRON ALONG WITH PROTEIN DENSITY ANALYSIS**

**ABSTRACT**

**Background:** *Aggregatibacter actinomycetemcomitans* is the largest bacteria in aggressive periodontitis. Biofilm formation in the periodontal tissues is a gradual and continuous process. The molecular weight of proteins in biofilms can be targeted in determining biofilm specific proteins, which can be used as candidates for biomarkers of a disease. Environmental changes can come from the intake of food consumed every day. It is necessary to conduct research to determine the strength of each biofilm protein by bacteria *Aggregatibacter actinomycetemcomitans* which is induced by various food intake, include 5% glucose, 5% lactose, soy protein, and 5% iron. **Purpose:** To analyze biofilm protein by *Aggregatibacter actinomycetemcomitans* bacteria and protein density induced by 5% glucose, 5% lactose, soy protein, and 5% iron. **Method:** To measuring of molecular weight of biofilm protein induced by 5% glucose, 5% lactose, soy protein, and 5% iron are using Sodium Dodecyl Sulfate (SDS) Poly Acrilamide Gel Electrophoresis (PAGE) electrophoresis. For measuring protein molecular weight and the density strength of protein, this research use Gel Doc™ EZ Imager software. **Result:** Biofilm induced by 5% glucose shows one protein band, biofilm protein induced by 5% lactose shows five protein bands, and biofilm induced soy protein shows seven protein bands. But biofilm induced by 5% iron does not shows any protein band. **Conclusion:** *Aggregatibacter actinomycetemcomitans* biofilm induced by 5% glucose, 5% lactose, and soy protein shows protein band that are thought to be specific-protein has differential protein density.

**Keyword:** *Aggregatibacter actinomycetemcomitans*, nutrient intake, biofilm, biofilm protein.

**DETEKSI PROTEIN BIOFILM *Aggregatibacter actinomycetemcomitans*  
YANG DIINDUKSI GLUKOSA, LAKTOSA, PROTEIN KEDELAI, DAN  
ZAT BESI SERTA ANALISIS DENSITAS PROTEIN**

**ABSTRAK**

**Latar Belakang:** *Aggregatibacter actinomycetemcomitans* merupakan bakteri terbanyak pada periodontitis agresif. Pembentukan biofilm pada jaringan periodontal merupakan proses yang bertahap dan berkesinambungan. Berat molekul protein pada biofilm dapat dijadikan target dalam menentukan protein spesifik biofilm, yang dapat dijadikan sebagai kandidat biomarker suatu penyakit. Perubahan lingkungan dapat berasal dari asupan makanan sehari-hari. Maka dari itu, perlu dilakukan penelitian untuk mengetahui densitas tiap protein biofilm oleh bakteri *Aggregatibacter actinomycetemcomitans* yang diinduksi dengan berbagai variasi bahan, yaitu glukosa 5%, laktosa 5%, protein kedelai, dan zat besi 5%.

**Tujuan:** Untuk mengetahui protein biofilm bakteri *Aggregatibacter actinomycetemcomitans* dan densitas protein yang telah diinduksi oleh glukosa 5%, laktosa 5%, protein kedelai, dan zat besi. **Metode:** Pengukuran berat molekul protein biofilm yang diinduksi glukosa 5%, laktosa 5%, protein kedelai, dan zat besi 5%, serta densitas protein menggunakan perangkat lunak *Gel Doc™ EZ Imager* dengan sebelumnya dilakukan running gel elektroforesis *Sodium Dodecyl Sulfate (SDS) Poly Acrilamide Gel Electrophoresis (PAGE)*. **Hasil:** Biofilm *Aggregatibacter actinomycetemcomitans* yang diinduksi glukosa 5% menunjukkan satu pita protein. Biofilm *Aggregatibacter actinomycetemcomitans* yang diinduksi laktosa 5% menunjukkan lima pita protein. Biofilm *Aggregatibacter actinomycetemcomitans* yang diinduksi protein kedelai menunjukkan tujuh pita protein. Tetapi pada biofilm *Aggregatibacter actinomycetemcomitans* yang diinduksi zat besi 5% tidak menunjukkan adanya pita protein. **Kesimpulan:** Biofilm *Aggregatibacter actinomycetemcomitans* yang diinduksi glukosa 5%, laktosa 5%, dan protein kedelai menunjukkan adanya pita protein yang diperkirakan sebagai protein spesifik yang memiliki densitas protein yang berbeda-beda.

**Kata Kunci:** *Aggregatibacter actinomycetemcomitans*, intake makanan, biofilm, protein biofilm.