

## Documents

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**Association of Oral Microbiota Properties on Hyaluronidase and Biofilm Formation**

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**Abstract**

Correlation between hyaluronidase (Hyl) activity and biofilm detachment in a few bacterial species was found. However, it is unclear if this association applies to bacterial species or for more general bacterial characteristics. This study determined the association between biofilm production and Hyl activity among bacterial isolates from the oral cavity of healthy subjects, and its association with Gram staining group, colony surface morphology and bacteria shape. The swab was taken from the tongue, cheek and entire teeth surfaces of 35 subjects, and tested for biofilm through modified microtiter plate assay while Hyl production was screened through HA rapid plate method. Forty-four isolates were found, each 50% are Gram-positive, and Gram-negative bacteria, with the majority are cocci and non-mucoid colony. More than 70% of isolates are moderate and strong; (n= 17, 38.6%) and (n=15, 34.1%) respectively for biofilm production; and 68.2% are Hyl producer. A significant association was found between Hyl and bacterial shape (p=0.018) and colony morphology (p=0.018), while other association is not significantly measured, including between Hyl and biofilm (p=0.659). This study showed that biofilm production is not affected by the characteristics of the bacteria to produce or not produce hyaluronidase. Meanwhile, Hyl production is prone in rod shape and mucoid isolates which need further investigations. © 2021. All Rights Reserved.

**Author Keywords**

bacterial shape; biofilm; colony morphology; Gram-negative; Gram-positive; hyaluronidase

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