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Development of a new protocol: a macroscopic study of the tongue dorsal surface

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The presence on the dorsal tongue of additional irregularities such as fissures, grooves and the distribution of papillae constitutes a retention area for harbouring bacteria, particularly those that produce sulphur compounds.

A protocol to study the morphology of the tongue in a macroscopic way was developed, aimed at better investigating on the relationship between the dorsal surface of the tongue, considered as a microbial ecosystem, and the oral halitosis (1).

A patient affected by oral malodour was chosen and included in the study. A picture of his lingual dorsum was taken to show the areas where the coating was visible. Then, an impression with alginate was taken obtaining a replication in plaster and, on the base of this one, a sort of impression tray was modelled utilizing an impression material made of silicone putty. After this, a second impression was taken combining the tray in silicone putty with a silicone material having a very low-light density (using the 2-step double-mix impression technique).

The impression obtained was divided and cut with a blade in six parts, according to Winkel Tongue Coated Index (2), and their contour was observed with the stereo-microscope. The images were analysed with the Image J programme, and the parameter considered was the depth among the papillae. The mean measure of this parameter, in the parts where the coating was visible, resulted in a range between $0{,}25 \pm 0{,}019$ mm and $0{,}55 \pm 0{,}11$ mm.

The same measures in the parts where the coating was not visible swung instead in a range between $0{,}14 \pm 0{,}08$ mm and $0{,}23 \pm 0{,}07$ mm.

This new protocol can be considered clinically relevant for the suitable diagnosis and for the personalized treatment of halitosis.

References

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Key words

Morphology of the tongue dorsal surface, Dental impression material, Stereomicroscopy, Halitosis.