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 ± 0,019 mm and 0,55 ± 0,11 mm.

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

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

References

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