

## PREFACE

The human tongue is a unique organ of the human body. Dorsal surface of the tongue is unique from person to person as human DNA, the color, shape, and surface features are characteristic of every individual. This property makes it possible for the tongue to serve as a tool for biometric identification. Tongue print being the new biometric authentication tool is unique and cannot be forged.

This study provides valuable insights into the diversity of tongue morphology within a population, underscoring the feasibility of using these features for non-invasive identification purposes. This research contributes to the growing interest in tongue analysis for medical diagnostics and forensic applications. Further exploration and validation of these findings may pave the way for the integration of tongue biometrics in diverse fields, including healthcare and law enforcement.

tongue is definitely one of the unique structures which can add as an adjunct in forensic identification with other aids like rugoscopy, finger prints analysis and many others. One very important fact other than the uniqueness of the tongue is that it is encased in the oral cavity and is well protected and can only be protracted with consent. Tongue has many properties which are quite unique to an individual. Tongue examination is a field which is quite unexplored as compared to other forensic identification tools. It is now being considered suitable for recognition of identity. Tongue has geometrical shape information and physiological texture details which when recorded can prove to be very useful in identification. The main reason for introducing tongue prints in forensic odontology is because of its usefulness in human identification. Biometrics is a very important tool for identification and like commonly used fingerprints, facial scans, iris or voice recognition tongue scans can also be used. Our study is targeted to present the morphological differences proving the evident uniqueness of the tongue. Unlike other forensic identification tools forging of tongue prints is almost impossible. No two tongues as we are aware are similar or are completely unique to each, it is protected inside the oral cavity and highly stable. Hence this study which analysis the morphological differences on the dorsal surface of the tongue in the people of Solan was done to find out and compare if the fact that the tongue is unique actually holds true. Preservation of antemortem tongue

impressions and photographs for forensic identification has great scope and can prove to be of great help. Studies like ours which are used to collect information which can be used as a reference for further studies should be encouraged to collect more proof on the fact that tongue is a unique tool.

In our study the Digital photographs of the tongue were captured. The study sample included 316 participants. The geometrical shape, colour and surface texture details were observed and analyzed. Differences based on gender and age were studied and analyzed.

The results we got suggested that shape of the tongue, surface texture of the tongue, apex of the tongue, color of the tongue differs based on gender but surface texture, shape of the tongue, apex of the tongue, median septum does not differ based on age groups, color of the tongue differs based on age group.

To conclude the individual lingual shape is consistent and the physiological texture is invariable. In addition to rugoscopy and cheiloscopy, the study of lingual morphology may be one of the secure methods for identification in forensic dentistry. Hence the present study is to analyze the various lingual morphological aspects like shape, color, apex, median septum and other characteristics which can aid in the identification

This observational study provides valuable insights into the morphological differences present on the dorsal surface of the tongue among the people of Solan. The findings contribute to our understanding of regional variations in tongue anatomy and may have implications for oral health practices, diagnosis of systemic conditions, and the development of targeted healthcare interventions in this specific population. Further research is warranted to explore the underlying factors influencing these morphological differences and their potential clinical significance.

The observed morphological differences on the dorsal surface of the tongue in the population of Solan not only enrich our comprehension of regional variations but also hold potential implications for various aspects of healthcare. The findings of this study can be instrumental in shaping oral health practices tailored to the specific characteristics of this population. Understanding the unique morphological features

may aid in the development of region-specific oral hygiene recommendations, preventive strategies, and educational initiatives to promote better overall oral health.

Moreover, the identified variations in tongue anatomy could have diagnostic significance in the detection of systemic conditions. The tongue is recognized as a mirror reflecting the overall health of an individual, and deviations from normal morphology may serve as indicators of underlying health issues. Clinicians in Solan and similar regions can leverage this knowledge to enhance their diagnostic capabilities, potentially leading to earlier detection and intervention for systemic diseases.

The potential clinical significance of these morphological differences also opens avenues for targeted healthcare interventions. Tailoring medical approaches to the specific characteristics of the population in Solan may improve the efficacy of treatments and interventions, ultimately enhancing healthcare outcomes. This knowledge could be integrated into medical education curricula and clinical practice guidelines to better equip healthcare professionals in the region.

Despite the valuable insights gained from this study, it is acknowledged that further research is essential. Exploring the underlying factors influencing these morphological differences would provide a more comprehensive understanding. Additionally, investigating the long-term health implications and establishing associations between tongue morphology and specific health outcomes would contribute to the development of evidence-based healthcare strategies in Solan and potentially inform broader healthcare practices globally. This study lays the groundwork for continued research endeavours aimed at unravelling the intricate relationship between tongue morphology and health in specific populations.