
AN OBSERVATIONAL STUDY TO ANALYSE AND COMPARE THE MORPHOLOGICAL DIFFERENCES ON THE DORSAL SURFACE OF THE TONGUE IN THE PEOPLE OF SOLAN

INTRODUCTION

- Basic Background
- Rationale
- The Objectives of the Study
- Consequences of studying and analyzing Dorsal Tongue Morphology
- Possible scope and Limitations

The dorsal surface of the tongue exhibits unique morphological characteristics that have the capacity or potential to be used as a biometric identifier for medical applications and forensic identification.

Tongue analysis has gained increasing popularity and interest in recent years due to its non-invasive nature, contactless examination, and the distinctive features present on its surface. This observational study aims to analyse and compare the morphological differences on the dorsal surface of the tongue in a diverse population.

1. **Basic Background:** Traditional medicine systems, such as Traditional Chinese Medicine (TCM) and Ayurveda, have long utilized tongue examination as a diagnostic tool to assess an individual's health status and identify underlying imbalances or diseases.

In these systems, the tongue's appearance, colour, texture, and coating are considered reflections of the body's internal health and provide valuable diagnostic information.

2. **Rationale:** The growing interest in biometric identification methods and the need for non-invasive techniques in forensic science and medical diagnostics have led to exploring the potential of the tongue as a unique biometric identifier.

Unlike traditional biometrics like fingerprints and iris scans, tongue analysis offers a non-contact, hygienic, and easily accessible means of identification.

3. **Objectives of the Study:** The main objectives of this observational study are as follows:
 - a. To find out or analyse and list or document the structural features present on the dorsal surface of the tongue.

- b. To figure out and identify any significant variations in tongue morphology among individuals of different gender or age.
 - c. To analyse the probability of morphological differences in tongue analysis as a biometric identifier for human identification.
 - d. To document and discuss the inferences of tongue analysis in forensic studies and medical researches and diagnostics.
4. Consequences of studying and analysing -Dorsal Tongue Morphology: Tongue analysis has the probability to match the existing biometric identification methods, contributing an additional layer of identification and verification.

The structural variations observed on the dorsal surface of the tongue can give a unique and individual-specific pattern, making it a valuable tool for forensic investigations, postmortem identifications, and access control systems.

5. Possible scope and Limitations: The scope of this study is limited to the morphological examination of the dorsal surface of the tongue. This study does not involve invasive procedures and subjects with underlying medical conditions are not included.

Human identification is a very demanding, challenging and difficult area. Forensic odontologists are able to identify human beings if only there are some unique features associated with that individual's oral cavity and associated organs.

Forensic odontology demands the contribution of dentists especially in criminal and legal cases. This is because they provide dental records, photographs and radiographs which are quite useful in human identification. The basic need for studying various structures useful in forensics is that a thorough understanding can be created and a data base can be updated and stored for comparative analysis.

Teeth are not always present and are liable to changes but in the absence of teeth tongue can be easily accessed.

Tongue can prove to be very useful in both forensic identification and in biometrics. From the above documented facts its quite clear that our tongue is definitely one of the unique structures which can add as an adjust 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 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 presents 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 our which are used to collect information which can be used as a reference for further studies should be encourage to collect more proof on the fact that tongue is a unique tool.