

Isolate the *Streptococcus mutans* from dental caries in patients attending Dental Clinic, Teaching Hospital, Jaffna

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Introduction: Oral diseases, affecting 3.5 billion people globally, pose significant public health challenges. Dental caries, a chronic microbiological disease, ranks third in medical costs. Odontogenic infections are due to polymicrobial biofilm, which contains multiple bacterial strains. *Streptococcus mutans*, a key cariogenic pathogen, is linked to caries initiation. This bacterium also contributes to various infections such as infective endocarditis. Early detection of antibiotic resistance and effective prophylactic therapy are crucial for prevention.

Objectives: This study aimed to assess the prevalence and characteristics of *Streptococcus mutans* from dental caries in patients, attending the Dental clinic, Teaching Hospital, Jaffna.

Methods: This research study was approved by the Ethical Review Committee, Faculty of Medicine, University of Jaffna. This was a laboratory-based experimental study involving 120 dental caries patients at the Dental Clinic, Teaching Hospital Jaffna in September 2023. Caries samples were collected and transported in BHI broth to the microbiology laboratory at Teaching Hospital and incubated at 37°C for 24 hours. The broth was plated on Selective Mitis agar with bacitracin and sucrose. *Streptococcus mutans* strains isolated from samples were initially identified based on their distinct colony morphology observed on selective agar, with reference to the colony morphology of a standard strain (ATCC 700610) grown on the same medium. Following this preliminary identification step, the selected colonies underwent Gram staining and additional biochemical tests for laboratory confirmation of their identity.

Results: Of the participants, there were 34.2% males and 65.8% females. Nearly 90% (109/120) of samples showed positive cultures for any microorganisms. Among the positive cultures, 70% (84/120) were identified as *S. mutans*. Nearly 20% (25/120) of samples isolated other microorganisms.

Conclusion: In this study, the rate of isolation of *Streptococcus mutans* was 70% (84/120). The findings will contribute valuable insights into the microbiology of dental caries, forming a basis for preventive and therapeutic strategies.