

ABSTRACT

Dextranase enzyme activity and the spread of *Streptococcus mutans* Genotype In caries active and caries free groups

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Streptococcus mutans is closely associated with the development of dental caries in human. The dental caries were mostly documented in children from developing countries, in which more than 80% of the population are children. The purpose of this study was to investigate the transmission of *Streptococcus mutans* in some kindergartens in Surabaya and the role of *dextranase* activity in the development of dental caries.

The sample were children 4 to 6 years old, collected from kindergarten school in Surabaya, that closely probability sampling. Plaque sample were collected by brushing all erupted teeth with a steril toothbrush for 1 minute from 146 kindergarten. The oral hygiene was scored by based on plaque measurement. Caries experience was scored by def-t. The data were completed by questionnarire, about sex, age, diet and personal health history.

Isolation and identification of *Streptococcus mutans* was conducted as a routine method based on morphological macroscopic, microscopic appearance, and complicated by biochemical test using API 20 Strept (bioMerieux, France). Identification of *dexA* gene used PCR method and *dextranase* enzyme activity was evaluated by both methods of halo diameter arround the colony in blue *dextran* agar plate and by chemical method using spectrophotometer.

The children population from kindergarten in east, west, north and south Surabaya were including in this study, in which 146 children were met to the conclusion criteria. the prevalence rate of dental caries was 74%. The results showed that *dextranase* enzyme activity, were higher in non caries groups than caries active groups. The genotype examination of some strains was documented more than one time it showed that the same pattern was found 3 (type 3,4,9) in caries active and 2 (type 16,18) in caries free, which showed there were transmission of *Streptococcus mutans* among children.

Key words Kindergarten, *Streptococcus mutans*, dextranase, transmission genotyping