

## **ABSTRACT**

*The main cause of dental caries is dental plaque. Dental plaque is food waste which contains bacteria. One of bacteria that can be found inside the plaque is Streptococcus mutans. Plaque control can be done chemically by using mouthwash. An antibacterial substance commonly added in mouthwash is chlorhexidine. However, on long-term use it can cause side effects such as dental discoloration, restoration, increased calculus formation, mucosal irritation, taste disorder and burning sensation. Alternatives to replace chlorhexidine are substances which have antibacterial action derived from natural material. Celery leaf (Apium graveolens L.) have potential as antibacterial because it contain chemical content such as saponin, tannin and flavonoid. This study aims to determine the effectiveness of mouthwash celery leaf ethanol extract against Streptococcus mutans bacteria.*

*Celery leaf extraction was done by maceration method. Maceration using ethanol 70% for 3 days. The extract was made into mouthwash in 4 variation of celery leaf extract concentration about 12,5% (F12,5), 15% (F15), 25% (F25) and 0% (negative control). The identification of chemical compounds suspected to have antibacterial activity is qualitatively carried out by phytochemical and Thin Layer Chromatography (TLC) method. The physical properties test, pH measurement and homogeneity. Antibacterial efficacy test was performed using disc diffusion with paper disc. The treatments were divided into 6 groups: F12,5, F15, F25, negative control (base formula) and comparator (chlorhexidine). Data analysis was done descriptively on phytochemical test data, physical characteristics and antibacterial effectiveness of celery leaf mouthwash preparation.*

*The results of identification of chemical compounds showed that celery leaf extract contains saponin, tannin and flavonoid. From the test result of physical characteristics of the preparation showed that the three formulas qualify as mouthwash preparation. The effect of treatment on Streptococcus mutans bacteria is indicated by the formation of clear zone around paper disc. From the observation, the mean of inhibit zone diameter is obtained. The main diameter of the smallest drag zone is 6,2 mm (F12,5) and the largest is 7,9 mm (F25). The conclusion of this research is the formula of celery leaf mouthwash can inhibit the growth of Streptococcus mutans bacteria. Compared with the comparison, the three formula of celery leaf mouthwash has smaller inhibitory effect.*

**Keywords:** *Dental plaque, Streptococcus mutans, antibacterial, chlorhexidine, celery leaf (Apium graveolens L.) extract, mouthwash*