

REPEATABILITY AND STABILITY OF LIPID POLYMER MEMBRANE-BASED TASTE SENSOR USING SURFACTANT WASHING TECHNIQUE IN BITTER TASTE TESTING

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ABSTRACT

The most important part of the taste sensor is the lipid polymer membrane, which when applied to the taste sample during measurement, the membrane will be contaminated by the taste substance. A method of washing the sensor membrane is required before the sensor is used for the next flavor sample measurement. Conventional cleaning solutions cannot easily clean the sensor membrane that measures bitter flavors. Therefore, this study aims to find an alternative cleaning method for the sensor membrane for testing bitterness to obtain an effective washing method. The taste sensor was fabricated with a solid contact design, using a screen-printed carbon electrode (SPCE). The positively charged membrane that detects an acidic bitter taste (diclofenac sodium) can return to its original condition if washed with a conventional cleaning solution for 10 min or a cationic surfactant (CTAB) cleaning solution for 5 min. Negatively charged membranes that detect hydrochloride salt (quinine) can return to their original condition if washed with a conventional cleaning solution for 5 minutes or anionic surfactant cleaning solution (SDS) for 2 minutes. The condition of the membrane that can return to its original condition is indicated by the measurement results of the membrane potential value which is the same as the membrane potential value when used to measure the flavor sample. Surfactants can work effectively at a certain cleaning time. Cleaning time is related to contact angle and micelle migration.

Kata Kunci: *Flavor sensor, membrane, washing, conventional, surfactant*