

Examination of *n*-Prop Taste Recognition Thresholds with Edible Taste Strips.

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Edible taste strips composed of pullulan-hydroxypropyl methylcellulose polymers readily incorporate a variety of taste stimuli for rapid examination of human taste function. The bitter tastant 6-propyl-2-thiouracil (*n*-PROP) is widely used to examine taste blindness, and this thiourea compound can be incorporated into edible strip at suprathreshold amounts. The goal of this study was to examine taste recognition thresholds for *n*-PROP in individuals who could detect this bitter tastant, and to identify potential olfactory components of *n*-PROP release from edible strips. Taste recognition thresholds for *n*-PROP were examined by a three-strip protocol that utilized a single series ascending method of limits. Taste recognition thresholds were also examined by the method of reversals. In our population, 90 percent of subjects could detect *n*-PROP as bitter. The range for *n*-PROP taste recognition thresholds was observed over two log units, with an upper value of 140 nanomoles. These recognition thresholds are over one order of magnitude lower than those reported for *n*-PROP with aqueous tests. Next, the volatility of dissolved taste films on the tongue was examined in order to identify potential olfactory components of tastant release. The same group of subjects was tested for their ability to detect *n*-PROP with their nasal passages occluded. Taste recognition thresholds for half of this subject population were identical in both the absence and presence of nose clamps. The remaining subjects detected *n*-PROP at the next higher or next lower amount. These results indicate that edible taste strips primarily measure gustatory cues. The results also demonstrate that edible strip technology is a highly sensitive and promising method for examining taste blindness in humans. Supported by NIDCD R44 DC007291, and URIF funding from Temple U.