

NAME: AKINBILE GRACE OLUWASEUN

MATRIC NUMBER: 18/MHS02/029

DEPARTMENT: NURSING, 200LVL

COURSE: PHS 212 (PHYSIOLOGY)

ANSWER

PATHWAY INVOLVED IN TASTE

The tongue contains small bumps called papillae, within or near which taste buds are situated. In the tongue's taste buds, the taste receptors receive sensory input via two important mechanisms- depolarization and neurotransmitter release. Intake of salty foods leads more sodium ions to enter the receptor, causing the said mechanisms. The same is true with the intake of sour foods (hydrogen ions) and sweet foods (sugar molecules), both of which result to the closing of K⁺ channels upon their entry.

From the axons of the taste receptors, the sensory information is transferred to the three taste pathways through the branches of cranial nerves VII, IX and X. The chorda tympani of CN VII (facial nerve) carries the taste sensory input from the tongues anterior two-thirds. Then, the rest of the taste sensations from the throat, palate and posterior tongue are transmitted by the branches of CN IX (glossopharyngeal nerve) and CN X (vagus nerve). From these cranial nerves, taste sensory input travels through the nerve fibre synapses to the solitary tract, the ventral posteromedial thalamic nuclei, and the thalamus. In these three locations, there are clustered neurons which respond to the same taste (sour, sweet, salty or bitter). The thalamus relays the information to the primary gustatory cortex located in the somatosensory cortex. The primary gustatory cortex is where the perception of a particular taste is processed.