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MATRIC NUMBER: 18/MHS07/016

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: PHARMACOLOGY

COURSE CODE: PHS 212

**COURSE TITLE: RENAL PHYSIOLOGY, BODY FLUID & TEMPERATURE
REGULATION AND AUTONOMIC NERVOUS SYSTEM.**

DATE: 16TH MAY 2020 – 22ND MAY 2020

ASSIGNMENT: ELUCIDATE THE PATHWAY INVOLVED IN TASTE

THE TASTE PATHWAY

The taste is a chemical sense which shows the sensory experience produced by stimulation of specific receptors in the oral cavity. The tongue contains small bumps called papillae within or near which the taste buds are situated. In the taste buds, the receptors receive sensory input via two important mechanisms; depolarization and neurotransmitter release. Intake of salty foods leads more sodium ions to enter the receptors, causing the above mechanism. In the intake of sour food, hydrogen ions enter the receptors while in the consumption of sweet food, sugar molecules enter the receptors which results in the closing of K^+ channels upon their entry. From the axon to the taste receptors, the sensory information is transferred to the three taste pathways via the branches of cranial nerves VII, IX and X.

The three nerves that carry taste signals to the brain stem:

- The chorda tympani nerve (from the front of the tongue) : the chorda tympani of cranial nerve (CN) VII carries the taste sensory input from the tongue's anterior two-thirds.
- The glossopharyngeal nerve (from the back of the tongue) :The rest of the taste sensations from the throat, palate and posterior tongue are transmitted by the branches of CN IX.

- The vagus nerve (from the throat area and palate) : from these cranial nerve, taste sensory input travels through the nerve fiber 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 (sweet, sour, bitter or salty). 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.

In addition, the trigeminal nerve carries signal from the touch / temperature / pain system. Taste signals combine with the brain stem areas involved in arousal (i.e from sleep) then with smell signals in the brain to produce the sensation of flavor.