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Bitter tastants alter gastric-phase postprandial hemodynamics

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Tovel pharmacological mechanism: The bitter tastants gentian root (Gentian lutea L.) and wormwood herb (Artemisia absinthium L.) stimulate oral bitter taste receptors eliciting increases of peripheral vascular resistance and altering postprandial hemodynamics. This vascular response, elicited by chemosensory stimulation, provides a mechanism by which bitter tastants could enhance digestion. Digestive activity is dependent on increased splanchnic blood flow, compared to the fasting state, and customarily splanchnic hyperemia is supported by increased cardiac activity. Problems occur in both the digestive organs and the circulatory system when cardiac activity is insufficient to meet the postprandial demands, digestive problems include poor appetite, bloating and virtually all forms of dyspepsia. Circulatory problems include postural hypotension, angina and stroke. Notably, postprandial hypotension is a predictor of all-cause mortality in the elderly. Chemosensory stimulation of the oral bitter taste receptors by either gentian or wormwood elicits a series of rapid cardiovascular responses. The primary cardiovascular change is increased peripheral vascular resistance which acts to increase blood pressure. This vascular change leads to a reduction in cardiac activity presumably due to the baroreceptor's regulation of blood pressure. The possible applications of the observed response mechanism include management of digestive problems, the traditional application of bitter tasting aperitifs, and cardiovascular conditions relating to postprandial hypotension. In particular those suffering from cardiac insufficiency and some vascular disorders may benefit from treatments based on the findings. These findings demonstrate that some secondary plants metabolites can rapidly change postprandial hemodynamics and influence the gastric phase of digestion.

Biography

Michael K McMullen studied both applied science and psychology before working as a clinical audiologist in Australia. Later, he undertook studies in clinical herbal and nutrition. Since 1986, he has worked as a clinical herbalist in Sweden. He completed his PhD at the University of Westminster, London, UK in 2012. His thesis was entitled "The Impact of Bitter Tastants on the Cardiovascular System".

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