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Assessment of electroencephalographic power spectral density during chocolate tasting

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Smell, taste, shine, snap, smoothness, and texture are qualities that define the complex flavor of chocolate. In addition to its excellent intrinsic qualities, chocolate has been shown to bear effects on neurocognition and behavior. Sokolov et al., (2013) reviewed the neuromodulator effects and neuroprotective activity of flavonoids extracted from cacao on humans. The brain regions where flavonoids penetrate and accumulate are responsible for learning and memory. The beneficial effect of cacao on arterial pressure, resistance to insulin, vascular function and platelets has also been demonstrated (Corti *et al.*, 2009). The added value to the beneficial effects described above is the hedonistic experience associated with a chocolate tasting. In this regard, this study will be focused on the neural substrates underlying the feeling of pleasantness experienced by one testing group of expert and novice subjects, during sensory evaluation of qualities different of chocolate in blind condition. It is possible to estimate the approach-withdrawal behaviors resulting by spectral power difference in the Alpha band, between right and left prefrontal cortex (Davidson *et al.*, 1999; Coan *et al.*, 2004) deduced from the electroencephalographic (EEG) signal. However, the degree of pleasantness is not the sole criteria taken into consideration. Brain waves' responses to tasting chocolate could be different based on different variables: varying mental states could result from mental effort, focus, relax, activation elicited by sensory evaluation. Assessment of EEG power spectral density could serve as the basis of a systematic classification of sensory response to a tasting of different qualities of chocolate.

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