Commentary

The Methyltetrahydro-β-Carbolines in Maca (Lepidium meyenii)

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Maca, a plant native to the Peruvian highlands, contains (1R,3S)-1-methyl-1,2,3,4-tetrahydro-β-carboline-3-carboxylic acid (MTCA). The family of the tetrahydro-β-carbolines has been associated with both biologically helpful and harmful compounds. We present evidence that MTCA is a natural constituent of Maca, and on consumption no toxicity is found. This suggests that, when consumed as multi-component, MTCA may loose its adversity as drug action.

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obtained after following a traditional boiling process, protected epidermal cells from the damaging effects of ultraviolet radiation (10).

Polyphenols can inhibit MTCA mutagenicity in presence of nitrites (11). Research shows that polyphenols are important constituents of Maca and they can be related to beneficial effects (10).

In relation to the suggestion that MTCA found in Maca can inhibit MAO activity and alter neuronal function (2), our laboratory recently demonstrated that MTCAs do not affect MAO activity in brain (12). This outcome contrasts with the effects of other \( \beta \)-carbolines (13). Research shows MTCA in Maca is not neurotoxic, rather it improves memory and learning in mice (12,14). Having a favorable effect on the experimental mouse model for Alzheimer (12), Maca constitutes a potential treatment for this pathology. Results of recent MTCA–Maca research, taken in conjunction with the fact that Maca contains several beneficial compounds, some of which has anti-carcinogenic properties (1,15), leads us to conclude that Maca consumed as a whole plant must not generate undue health concerns. As mentioned in the French alert (4), our conclusion incorporates the lack of reported toxicity where Maca is consumed after a traditional boiling process.

MTCA is natural constituent of many plants and no toxicity is found on consumption of such whole plants. This suggests that as multi-component, MTCA may loose adverse drug action.

References


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