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Stinging Nettle (*Urtica simensis*): An Indigenous But Unrecognised Micronutrient Potential for Combatting Hidden Hunger in Ethiopia

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Abstract

The aim of this study was to investigate the micronutrient potential of stinging nettle (*Urtica simensis*) grown in Ethiopia. For this experimental study, samples were collected from Chacha, North Shewa zone of Amhara Regional State in June, 2016. Samples were divided into three groups. Lyophilized group was directly stored at -80°C whereas the other two groups underwent shade (at $20\text{--}22^{\circ}\text{C}$ for 9 days) or sun (for 11 hours and 20 minutes) drying processes. Vitamins such as carotenoids (lutein, zeaxanthin, β -cryptoxanthin, 9-cis- β -carotene, 13-cis- β -carotene, α -carotene and β -carotene), thiamine, vitamin C and α -tocopherol were analysed using HPLC at Institute of Biological Chemistry and Nutrition whereas, minerals such as Ca, K, Mg, P, Fe, Mn, Zn, Cu, Co, I and Se were measured at Landesanstalt für Landwirtschaftliche Chemie, University of Hohenheim, Stuttgart, Germany. The total moisture content of the samples was about 84%. Based on the lyophilized samples, the concentrations of thiamine, vitamin C and α -tocopherol were $62.19 + 3.04 \mu\text{g}/100 \text{ g}$, $105.63 + 5.27 \mu\text{g}/100 \text{ g}$ and $1.53 + 0.03 \text{ mg}/100 \text{ g}$, respectively. The concentrations of carotenoids were $11.96 + 0.257 \text{ mg}/100 \text{ g}$ lutein, $0.52 + 0.016 \text{ mg}/100 \text{ g}$ 9-cis- β -carotene, $0.30 + 0.13 \text{ mg}/100 \text{ g}$ 13-cis- β -carotene, $0.32 + 0.009 \text{ mg}/100 \text{ g}$ α -carotene and $7.92 + 0.15 \text{ mg}/100 \text{ g}$ β -carotene. They have high content of Ca ($813.04 + 2.29 \text{ mg}/100 \text{ g}$), K ($899.90 + 4.06 \text{ mg}/100 \text{ g}$), Fe ($21.25 + 0.76 \text{ mg}/100 \text{ g}$) and Zn ($1.28 + 0.04 \mu\text{g}/100 \text{ g}$). Comparing the three drying processes, lyophilized group contained the highest concentrations of lutein, β -carotene and minerals. In conclusion, *Urtica simensis* is a rich indigenous micronutrient resources to curb the issue of hidden hunger in Ethiopia.

Keywords: Ethiopia, hidden hunger, micronutrients, stinging nettle