# Stinging nettle (*Urtica simensis*): An Indigenous but Unrecognized Micronutrient Potential for Combatting Hidden Hunger in Ethiopia

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## Background

Stinging nettle is a wild herbaceous perennial flowering plant with stinging hair (1). Apart from its nutritional value, stinging nettle has a broad spectrum of medicinal effects for both infectious and non-communicable diseases (2). The botanical name for the species of stinging nettle in Ethiopia is *Urtica simensis*. It is widely available and consumed in some places of the country. Nevertheless, most people know *Urtica simensis* (Samma) for its notorious stinging nature. Therefore, the aim of this study was to investigate the micronutrient potential of stinging nettle (Urtica simensis) grown in Ethiopia.

## Materials and Methods

### Sampling site

Samples of *Urtica simensis* were collected from Chacha town in October 2015. This town is situated at 9°31'60" N and 39°27'0" E, and located at an elevation of 2,756 masl in north-eastern part of Addis Abeba, Ethiopia.

### Sample collection

The nettle samples were gathered using our hands covered with gloves and rubbed between 'sefed' (a large round piece of wicker) and 'wenfit' (sieve) to remove the stinging hairs. The leaves were separated from the stem, transferred into plastic bags, tied and transported to the place where drying was done. Samples were divided into lyophilized, shade dried and sun dried samples.

### Vitamins and mineral measurements

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, University of Hohenheim, Stuttgart, Germany.

Minerals such as Ca, K, Mg, P, Fe, Mn and Zn were measured using Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES), whereas Cu, Co and Se were measured using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) at Core Facility of University of Hohenheim.

## Results

The total moisture content of the samples was about 84%.

Based on the lyophilized samples, the concentrations of **thiamine**, **vitamin C** and **α-tocopherol** in 100g edible portion were 62.2 ± 3.0µg, 105.6 ± 5.3µg and 1.5 ± 0.03mg, respectively.

The concentrations of carotenoids in 100g edible portion were 12.0 ± 0.3mg lutein, 0.5 ± 0.02mg 9-cis-β-carotene, 0.3 ± 0.1mg 13-cis- β-carotene, 0.3 ± 0.01mg α-carotene and 7.9 ± 0.1 mg β-carotene.

They have high content of Ca (813.04 ± 2.3mg), K (899.9 ± 4.1 mg), Fe (21.2 ± 0.8mg) and Zn (1.3 ± 0.04µg) in 100g of edible leaves.

Comparing the three drying processes, lyophilized group contained the highest concentrations of lutein, β-carotene and minerals.

Picture of Urtica simensis (samma) taken institu

## Conclusion

In conclusion, *Urtica simensis* is a rich indigenous micro-nutrient resource to increase the intake of pro-vitamin A, calcium, potassium, iron and zinc.

## References

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