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## Nutritional Potential of Underutilised Edible Plants in Agroforestry Systems of Yayu, Southwestern Ethiopia

HABTAMU S. ARAGAW<sup>1</sup>, OMARSHERIF MOHAMMED JEMAL<sup>1</sup>, JULIAN PHILPP WALD<sup>2</sup>, DONATUS NOHR<sup>2</sup>, DANIEL CALLO-CONCHA<sup>1</sup>

<sup>1</sup>University of Bonn, Centre for Development Research (ZEF), Germany

<sup>2</sup>University of Hohenheim, Inst. of Biological Chemistry and Nutrition, Germany

### Abstract

In Ethiopia, food and nutrition insecurity has remained a major issue since the great famine in 1984. Most efforts have been designed to increase productivity per unit area of land, but the potential of uncultivated plants remains untapped. This study aimed to explore the nutritional potential of underutilised fruits and vegetables in Yayu, southwestern Ethiopia. Group and key informant interviews along with laboratory analyses were conducted to assess the existence, level of exploitation and nutrient content of selected species. Proximate food composition, selected minerals, vitamins and antinutrient factors content determined using standard methods. A total of 94 edible plant species were found in coffee agroforests and home-gardens, out of which 40 were characterized as underutilised species. Finally, twelve edible species were selected based on their current importance and future production potential, whose proximate food composition, mineral and vitamin content were found to be significantly different ( $p \leq 0.05$ ). The leaves of *Amaranthus gracizans*, *Solanum nigrum* and *Portulaca oleracea* contained protein in the range of 15.62 – 19.26 g/100 g dry edible portion (EP); calcium 585.00 - 2065.00 mg/100 g; iron 24.14 – 91.19 mg/100 g and zinc 1.6 – 3.81 mg/100 g EP. The fruits of *Carissa spinarum* and *Syzygium guineense* contained energy values of 252.30 and 244.54 kcal/100 g EP, respectively, comparable to the average energy value for maize (278 kcal/100 g). In addition, *Syzygium guineense* had a vitamin C content of 330.72 mg/100 g fresh EP and *Rubus apetalus* had a beta-carotene content of 1.94 mg/100 g, making them a rich source of vitamins. The content of antinutrient factors in tubers of three *Dioscorea* spp ranged from 158.1 – 837.41 mg/100 g EP - tannin, 2.41 – 2.81 mg/100 g - oxalate, and 31.06 – 90.17  $\mu$ g/100 g - phytate. The results showed that these underutilised fruits and vegetables are good sources of protein, minerals and vitamins, capable of supplementing locally predominant starchy diets. Also, the minimum amount of antinutrient factors would be advantageous for their assimilation. Therefore, adequate management and promotion of their consumption may have an impact on the dietary quality of the rural and urban populations.

**Keywords:** Antinutritional factors, biodiversity, diet diversity, nutrition, wild food plants