



Abebe Yimer^{1*}, Sirawdink Fikereyesus¹, Getachew Addis², Abebe Ayelgn³

¹Department of Post-Harvest Management, College of Agriculture and Veterinary Medicine, Jimma University, P.O. Box: 307, Jimma, Ethiopia

²Ethiopian Public Health Institute, P.O. Box: 1242 Addis Ababa, Ethiopia

³Center for Food Science and Nutrition, Addis Ababa University P.O. Box:1176, Addis Ababa, Ethiopia

1. Introduction

- Food and nutrition insecurity is a big problem and it leads undernutrition in developing country including Ethiopia.
- Wild edible plant diversity and their traditional knowledge exist in Ethiopia
- However, nutritional and anti-nutritional composition of wild edible plants(WEPs) is limited in the country.
- Therefore, study aimed to determine nutritional and anti-nutritional composition of some WEPs.

2. Material and Methods

- The study samples were collected from Bench Maji zone, southwest Ethiopia.
- This study was conducted using five WEPs as presented in Table 2.1.

Table 2.1 Five wild edible plants widely consumed by Meinit community

Scientific name	Local name	Edible part
<i>Solanum nigrum</i>	Chaw	Leaf
<i>Vigna membranacea</i>	Shutamodoroy	Leaf/seed
<i>Dioscorea praehensilis</i>	Entut	Tuber
<i>Trilepisium madagascariense</i> .	Gagut	Fruit
<i>Cleome gynandra</i>	Tikawoch	Leaf

- The nutritional and anti-nutritional composition of WEPs were analyzed following standard procedures.

3. Results

3.1 Proximate composite

The proximate composition of five WEPs were presented in Table 3.1

- Chaw leaves had high in protein and fiber content but it contained low in carbohydrate(CHO) & energy value.
- Entut tuber had low in Mc, ash, fat ,protein and fiber content but this tuber had high in CHO value.
- Gagut fruit showed rich in MC, fat and energy content while Tikawoch had high in ash value.

Table 3.1. Proximate composition (% on a dry basis) of five selected WEPs (mean ±SD).

WEPs	MC	Ash	Fat	Protein	Fiber	CHO	Energy
Chaw	6.0± 0.6 ^b	14.0±0.4 ^b	4.0±0.6 ^b	21.7±0.9^a	22.3±0.4^a	38.1±1.2^c	275.0±5.9^c
Shutamodoroy	5.9±0.5 ^b	12.6± 0.8 ^b	4.3±0.1 ^b	11.8±1.1 ^b	21.1±0.4 ^a	50.3 ±1.9 ^c	286.6±5.0 ^c
Entut	5.2±0.4^b	3.5± 0.1^c	0.7±0.1^c	4.0±0.5^d	8.9± 1.3^c	83.0±0.8^a	354.1±5.4 ^b
Gagut	7.9±0.1^a	4.9 ±0.3 ^c	6.1±0.1^a	6.3±0.6 ^c	10.1±0.6 ^c	72.6±0.8 ^b	371.1±1.6^a
Tikawoch	7.1± 0.7 ^a	16.4±0.7^a	3.3±0.6 ^b	20.1±0.6 ^a	18.8±0.8 ^b	41.4±0.5 ^d	276.0±4.5 ^c
CV(%)	7.9	6.8	10.7	6.0	4.6	2.0	1.5
LSD (p<0.05)	5.1	0.1	0.2	0.6	0.1	3.2	12.7

- Values are the mean of three independent measurements; Values within a column followed by different superscripts are significantly different at p<0.05 level; MC stands for moisture content, and db for dry weight basis
- CV= coefficient of variation in percent, LSD= least significant difference, MC=moisture content, CHO = carbohydrate.



Results continued....

3.2 Mineral composition

Mineral composition of five WEPs were presented in Table 3.2

- Shutamodoroy leaves showed low in Na and high in Fe and Cu.
- Entut tuber showed low in K, Ca, Mg and Cu compositions.
- Gagut contained minimum in Fe, Zn and Cu
- Tikawoch leaves had high in Na, K, Ca, & Mg while this vegetable had low in Cu

Table 3.2. Mineral composition of wild edible plant in mg/100 g (dry weight basis).

WEPs	Na	K	Ca	Mg	Fe	Zn	Cu
Chaw	272.1±0.6 ^a	1429.9±14.9	241.1±4.0 ^c	207.3±2.6 ^d	26.9±13.1 ^{ba}	3.7±0.0 ^d	0.38±0.0 ^{ba}
Shutamodoroy	174.9±51.5^b	802.4±83.0 ^c	322.8±13.6	324.9±12.9 ^c	38.5±0.2^a	3.9±0.0 ^c	0.5±0.3^a
Entut	207.6±2.9 ^b	440.6±13.9^d	3.7±0.6^c	68.2±5.1^c	3.4±0.1 ^c	5.9±0.0^a	0.1± 0.0^b
Gagut	221.0±11.7 ^b	1185.8±1.4 ^b	57.4±2.3 ^d	374.7±7.8 ^b	0.8± 0.0^c	2.4±0.1^c	0.1±0.0^b
Tikawoch	277.4± 2.8^a	1487.8±123.0^a	594.8± 32.9^a	588.1±12.5^a	21.7±2.0 ^b	5.5±0.04 ^b	0.1±0.0^b
CV(%)	10.3	6.3	6.6	2.9	32.4	0.9	58.6
LSD (p<0.05)	63.7	180.0	43.1	24.6	15.9	0.1	0.3

- Values are the mean of three independent measurements; Values within a column followed by different superscripts are significantly different at p<0.05 level; MC stands for moisture content, and db for dry weight basis
- CV= coefficient of variation in percent, LSD= least significant difference.

3.3 Anti-nutritional factors

The anti-nutritional factors of WEPs were presented in Table 3.3

- Low and high content of phytate & condensed tannin found in Entut tuber and Tikawoch, respectively.
- Chaw had highest in total oxalate content while the lowest content recorded Gagut fruit.

Table 3.3. The phytate, condensed tannin, and total oxalate contents of wild edible plants in mg/100 g.

WEPs	Phytate	Condensed Tannin	Total oxalate
Chaw	233.3±83.7 ^a	260.8±0.6 ^b	443.9 ±10.9^a
Shutamodoroy	175.6±32.9 ^b	142.7±1.3 ^c	307.3 ±70.9 ^b
Entut	8.6±0.9^d	5.8±0.6^c	64.6 ± 37.6 ^d
Gagut	65.5±10.5 ^c	28.9± 0.1 ^d	43.7 ± 0.7^d
Tikawoch	307.3±70.9^a	329.0± 2.6^a	205.0 ±11.1 ^c
CV(%)	32.5	0.5	17.1
LSD(p<0.05)	93.5	2.1	66.5

- Values are the mean of three independent measurements; Values within a column followed by different superscripts are significantly different at p<0.05 level; MC stands for moisture content, and db for dry weight basis
- CV= coefficient of variation in percent, LSD= least significant difference.

4. Conclusions

- This study showed that the WEPs had good sources of dietary nutrients for human consumption.
- They contribute to dietary diversification, food and nutrition security in rural communities of southwest Ethiopia and elsewhere the country.
- The study provide a baseline information for food industry, policy makers, and community nutrition