

**ETHIOPIAN HEALTH AND NUTRITION RESEARCH  
INSTITUTE**

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**TECHNICAL REPORT  
ON**

**Assessment of the nutritional values and ODAP  
content of traditional foods prepared from grass pea  
(*Lathyrus sativus*).**

**Asrat Wondimu, Frew Tekabe, Eskinder Biratu and Mengistu G/Tsadik**

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## SUMMARY

Grass pea (*Lathyrus sativus*) is one of the pulses commonly grown in Gojam, Gonder, Shoa, Tigray, Wello and Arsi. More than 70% of the total production is produced in Gojam, Gonder and Shoa regions. A considerable portion of the population in these areas depend on this pulse for their protein source, especially when all other crops fail due to drought and famine, since it grows under adverse agricultural conditions such as moisture stress and water logging. The major restriction of grass pea consumption is a disorder called lathyrism in humans and domestic animals that is caused by toxic constituent,  $\beta$ -N-oxalyl-L- $\alpha$ ,  $\beta$ -diaminopropionic acid (ODAP), the toxic effects of this pulse becomes apparent during prolonged consumption. As food legumes require proper processing before consumption, information on traditional processing was collected from 90 randomly selected households in Gojam (Bechena) and Gonder (Woreta) localities where the grass pea consumption and the incidence of lathyrism were reported to be high. A total of 30 food samples have been collected along with records of their modes of preparation. The ODAP (mg/100g) content of these traditional foods from Gojam ranged from 503.7mg/100g (raw) to 337.7 (Shiro flour) and 443.2 (Kikk). In the case of Gonder it ranged from 480.9mg/100g (raw) to 227.8 (Shiro flour) and 221.7 (Kikk). These traditional recipes were replicated and modified to maintain their nutritional value to the maximum and additional 26 new recipes were developed with the objectives of reducing the ODAP content of the final products. The processing technique has involved soaking and frequent removal of soaking water, boiling and discarding of the boiling water, dehulling, roasting, etc. A total of 56 food samples were determined for their nutrient value and ODAP contents. The average ODAP content of raw grass pea from Addis Ababa market (779.4 mg/100g) reduced to 412.4 in *Shiro* flour and 71.5 in *Shiro Wot*. The corresponding scores for *Kikk*, *Kikk Wot*, *Kolo* and *Nifro* were 447.6, 275.4, 312.6 and 201.8 respectively. The ODAP concentrations in raw whole grass pea from Addis Ababa markets (779.4 mg/100g) have been found very high compared to the samples procured from Gojam (503.7mg/100g) and that of Gonder (480.9mg/100g). Nevertheless, the exact sources of the samples collected from the Addis Ababa market are not known. This calls for further investigations in future. It is evident from all the tables that the proximate compositions of nutrients do not show major variation. These results demonstrate that subsequent and appropriate processing reduces the ODAP content substantially.