In this research work therefore aimed at evaluating the suitability of *Dioscorea alata* in the production of instant pounded yam. It also assessed the proximate and sensory attributes of the instant pounded yam.

**MATERIALS AND METHODS**

**Materials:** *D. alata* was purchased from a local market in Iwo, Osun State. Sodium metabisulphite (Sigma Chemical) was obtained from the Laboratory of Food Science and Technology, Bowen University, Iwo, Nigeria.

*Preparation of instant pounded yam:* Instant pounded yam was produced according to the method of...
Akinwande et al. (2008), with modification. Washed and drained yam tubers were peeled, diced (2 cm×2 cm) and immersed in sodium metabisulphite solution (800 ppm for 20 min) to delay enzymatic browning. The diced yams were thereafter blanched at 70 °C for either 5 or 10 minutes. Diced yam samples were dried in a cabinet dryer at 60 °C for 72 hr, milled to powder by a micro mill and sieved (600 µm). Fig. 1 shows the flow chart for the production of the instant pounded yam flour.

![Flow chart for the production of instant pounded yam](https://via.placeholder.com/150)

**Fig. 1:** Flow chart for the production of instant pounded yam

Proximate analysis: The moisture, crude protein (N x 6.25), crude fat, ash and crude fibre were determined according to AOAC (1995). Carbohydrate was determined by difference.

Sensory evaluation: Samples of instant pounded yam were evaluated by the hedonic rating and multiple comparison tests, using 10 trained assessors who are familiar with the product. Coded samples were evaluated for colour, taste, flavour, textural quality (stretchability, adhesiveness, cohesiveness, smoothness) and overall acceptability, using a 10 point hedonic scale where 1 = dislike extremely, 5 = neither like nor dislike and 9 = like extremely. In the multiple comparison test, a commercial instant pounded yam, tagged R, was used as a reference against which assessors were asked to compare stretchability, cohesiveness, smoothness, adhesiveness, colour and taste of the instant pounded yam samples.

Data analysis: All the data were analysed using analysis of variance and Duncan's multiple range test (SAS, 1995).

RESULTS AND DISCUSSION

The result of proximate composition of the instant pounded yam samples is presented in Table 1. Instant pounded yam flours blanched at 5 and 10 minutes had the same moisture (8.8 %) and crude fat contents (0.7...
Preliminary studies on the development and...

There was no significant difference (p≤0.05) in the proximate composition of the instant pounded yam flours blanched for 5 and 10 min. The protein and ash contents obtained for pounded yam flour in this study are lower than those reported by Udensi et al. (2008), may be due to differences in varieties and processing methods. The ether, crude fibre and carbohydrate contents are, however, within the range reported by Udensi et al. (2008). The low fibre contents of the pounded yam flours agreed with the report of Abara et al. (2011) that Dioscorea species are low in fibre. Fortification efforts to improve the protein and fibre contents of pounded yam with appropriate plant foods that will not adversely affect its acceptability are therefore essential.

### Table 1: Proximate composition of instant pounded yam blanched for 5 and 10 min

<table>
<thead>
<tr>
<th>Blanching duration (min)</th>
<th>Moisture (%)</th>
<th>Crude protein (%)</th>
<th>Crude fat (%)</th>
<th>Crude fibre (%)</th>
<th>Ash (%)</th>
<th>Carbohydrate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>8.8 ± 0.12a</td>
<td>3.9 ± 0.00a</td>
<td>0.7 ± 0.00a</td>
<td>1.2 ± 0.00a</td>
<td>1.9 ± 0.05a</td>
<td>83.5 ± 0.08a</td>
</tr>
<tr>
<td>10</td>
<td>8.8 ± 0.09a</td>
<td>3.8 ± 0.05a</td>
<td>0.7 ± 0.00a</td>
<td>1.1 ± 0.05a</td>
<td>1.8 ± 0.05a</td>
<td>83.8 ± 0.14a</td>
</tr>
</tbody>
</table>

Means with same letters in the same columns are not significantly different at p≤0.05

### Table 2: Sensory attributes of instant pounded yam blanched for 5 and 10 min

<table>
<thead>
<tr>
<th>Blanching duration (min)</th>
<th>Colour</th>
<th>Flavour</th>
<th>Texture</th>
<th>Taste</th>
<th>Overall acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6.8a</td>
<td>6.5a</td>
<td>6.4a</td>
<td>5.8a</td>
<td>6.8a</td>
</tr>
<tr>
<td>10</td>
<td>8.6b</td>
<td>7.6b</td>
<td>7.9b</td>
<td>7.8b</td>
<td>8.2b</td>
</tr>
</tbody>
</table>

Means with same letters in the same columns are not significantly different at p≤0.05

### Table 3: Mean scores of the comparison test of instant pounded yam (iyan)

<table>
<thead>
<tr>
<th>Instant pounded yam</th>
<th>Stretchability</th>
<th>Cohesiveness</th>
<th>Smoothness</th>
<th>Adhesiveness</th>
<th>Colour</th>
<th>Taste</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min blanching</td>
<td>1.8a</td>
<td>2.2a</td>
<td>2.7a</td>
<td>2.2a</td>
<td>2.0a</td>
<td>2.4a</td>
</tr>
<tr>
<td>10 min blanching</td>
<td>2.6b</td>
<td>3.6b</td>
<td>2.9b</td>
<td>3.8b</td>
<td>2.8b</td>
<td>3.8b</td>
</tr>
<tr>
<td>Reference</td>
<td>5.0b</td>
<td>5.0b</td>
<td>5.0b</td>
<td>5.0b</td>
<td>5.0b</td>
<td>5.0b</td>
</tr>
</tbody>
</table>

Means with same letters in the same columns are not significantly different at p≤0.05

**Conclusion:** Instant pounded yam from water yam is low in protein and crude fibre. It may therefore be beneficial if other plant sources are added to pounded yam to increase its nutritional value. The low fat content of instant pounded yam from water yam may be especially beneficial to those people suffering from non communicable diseases such as heart disease and stroke, diabetes, cancer and chronic lung disease.

Blanching of Dioscorea alata at 70 °C for either 5 or 10 min did not produce any significant difference (p≤0.05) in the proximate composition of instant pounded yam. However, blanching of Dioscorea alata at 70 °C for 10 min resulted in significantly (p≤0.05) higher sensory qualities than the one produced from blanching at 70 °C for 5 min. Instant pounded yam blanched for 10 min compared fairly well with the reference sample produced from D. rotundata. Dioscorea alata can therefore be used to produce an acceptable instant pounded yam.

**REFERENCES**


Akinwande, BA; Abiodun OA; Adeyemi, IA; Akanbi, CT (2008). Effect of steaming method and time on the physical and chemical properties of flour from yam tubers. Available online [www.ajol.info/journals/nifoj](http://www.ajol.info/journals/nifoj)


**ABIODUN A. ADEOLA, BOLANLE O. OTEGBAYO; SOLA OGUNNOIKI**


Ekwu, FC; Ozo, NO; Ikegwu, OJ (2005). Quality of fufu flour from white yam varieties (Dioscorea spp.). Nigerian Food Journal 23: 107-113


Maneenoon, K; Sirirugsa, P; Sridith, K (2008). Ethnobotany of Dioscorea L. (Dioscoreaceae), a major food plant of the Sakai tribe at Banthad Range, Peninsular Thailand. Ethnobotany Research and Applications 6: 385-394


Shaljeela, PS; Mohan, VR; Jesudas, LL; Soris, PT (2011). Nutritional and antinutritional evaluation of wild yam (Dioscorea spp.). Tropical and Subtropical Agroecosystems 14: 723-730

Shanthakumari, S; Mohan, VR; De Britto, AJ (2008). Nutritional evaluation and elimination of toxic principles in wild yam (Dioscorea spp.). Tropical and Subtropical Agroecosystems 8: 313-319
