

THE YIELD AND QUALITY PARAMETERS OF NEW CLONES OF SWEET POTATO (*Ipomoea batatas* L.)

FOLY, H. M.¹ AND G. F. ABD EL-NAEM²

1 Potato and veget. propagate vegetables Dept., Hort. Res.Inst., ARC, Giza

2 Agric. Chemistry Dept., Fac. of Agric., Minia University

(Manuscript received 23 November 2009)

Abstract

This study was conducted at Malway Agricultural Research Station and Chemistry Department, Faculty of Agric. Minia Univ., during 2006 and 2007 seasons to evaluate three new clones of sweet potato; suitable for food, feed and industrial uses or export and local cultivar Mabrouka. The new clones of sweet potato are Assuit 201 (SPA01), Assuit 202 (SPA02) and Assuit 204 (SPA04)]. The results indicated that the three clones performed well and yielded higher than the local cultivar. The highest marketable yield and dry matter content among the evaluated clones were those of SPA01. The clone SPA04 which did not perform well in yield and its components, had good levels of chemical characters (crude protein, total flavonoids, total phenolic compounds, vitamin C and starch) and of vegetative growth (stem length, numbers of primary branches/plant and vine weight).

Nitrate concentrations (NO_3^{-1} mg ion/kg fw) estimates ranged from 159 to 210. The highest level (210 mg ion/kg fw) of nitrates was recorded in roots of Mabrouka cultivar and the lowest one was found in clone SPA02. The nitrite concentrations ranged from 6 to 8 mg ion/kg fw and SPA02 clone contained the highest level. The recorded levels appeared to be within the safe limits (10 mg ion/kg fw) that don't cause toxic effects. The highest values for total soluble sugars (TSS), total reducing sugars (TRS) and total non reducing sugars (TNRS) were given by roots of Mabrouka cv. The levels of vitamin C of the sweet potato samples ranged from 14 mg/ 100g fw for SPA01 to 30 mg/ 100g fw for SPA04.

Total carotenoids (TCs) content, expressed as mg/100g fw was higher in Mabrouka than those determined in the creamy fleshed sweet potato samples (SPA04, SPA02 and SPA01).

The total flavonoids (TFs) concentration in SPA04 were double that of Mabrouka (0.75 mg/100g fw). TFs concentration took an opposite trend to that of TCs. The concentrations of total phenolic compounds (TPCs) in whole tuber root (WTR) and sweet potato peels (SPP) were determined and expressed as tannic acid and chlorogenic acid and the results showed that TPCs levels ranged from 14 to 52 mg/100g fw and were higher in SPP than WTR. The clone SPA04 surpassed the other two studied clones as well as Mabrouka cultivar and contained the highest TPCs concentration.