Proceedings of the 13th ISTRC Symposium, 2007
pp. 27 – 31

Selection of sweetpotato with high protein and/or low trypsin inhibitor activity

Toyama J., Yoshimoto M. and Yamakawa O.
Department of Upland Farming Research, National Agricultural Research Center for Kyushu Okinawa Region, Yokoichi-machi 6651-2, Miyakonojo, Miyazaki, 885-0091, Japan

Abstract. Low content of protein and the presence of anti-nutritional factor 'trypsin inhibitor' diminish the nutritional value of sweetpotato (*Ipomoea batatas* L.) as animal feed. Efforts have been made to develop sweetpotato with high content of protein and/ or low activity of trypsin inhibitor (TIA). Crude protein content and TIA of more than 800 breeding lines of sweetpotato were measured during 5 seasons from 1998 to 2002. Seven lines were selected as low TIA (14 to 120 TUI/mg DW) and 15 lines as high protein (26.1 to 46.6 mg/g DW), when compared to a standard variety 'Shiroyutaka' (TIA: 148 TUI/ mg DW, protein content: 17.4 mg/g DW). There was a strong positive correlation between protein content and TIA (r=0.856**). However, Q94128-1 (TIA: 6 TUI/mg DW, protein content: 26.8 mg/g DW) and KNF94225-13 (TIA: 59 TUI/mg DW, protein content: 32.0 mg/g DW) had high contents of protein but low TIA. Activity staining of trypsin inhibitor in the proteins extracted from these two lines on polyacrylamide gel revealed lack or less activity of trypsin inhibitor.