ABSTRACT

Fresh Moringa oleifera leaves are very rich in phytonutrients, however the leaves are also highly perishable and require processing for increased shelf-life. The method of processing, specifically drying affects the nutritional value of the product. The present study therefore, analyzed the nutraceutical value and growth of toxic microbes when the leaves were dried under different conditions i.e. room temperature, greenhouse, 50% shade net, and in the oven at 60 oC for 4 h. The experiments were carried out at the Jomo Kenyatta University of Agriculture and Technology (JKUAT). The treatments were applied in triplicate and arranged on a completely randomized design (CRD). Data on nutritional value of dried Moringa leaves was subjected to analysis of variance (ANOVA) for parameterization and means separated using protected $LSD_{0.05}$. The study showed that drying Moringa leaves under shade, room and greenhouse conditions significantly ($P < 0.05$) affects the nutritional value of the product. The results showed highest levels of vitamin C, vitamin A, polyphenols and terpenoids when the leaves were dried under 50% shade net and room temperature conditions. In contrast, the glucosinolate content was significantly ($P<0.05$) higher when the leaves were dried instantly in the oven (9.1%/wt), followed by drying under greenhouse conditions (8.7%/wt) before oven drying. However, drying of Moringa leaves under shade before oven drying resulted in growth of toxic microbial organisms such as staphylococcus, yeast, E. coli and molds that can potentially affect the safety of the product. Finally, the drying conditions also significantly ($P <0.05$) affected the moisture content of the powder obtained. The results of this study form an important reference for small-holder Moringa growers and processors in the development of an optimal processing regime for high value Moringa powder. 0.05 .