

**Mavis Owureku-Asare**

**EFFECT OF PRETREATMENT ON PHYSICOCHEMICAL QUALITY CHARACTERISTICS OF DRIED TOMATO (*LYCOPERSICON ESCULENTUM*).**

**ABSTRACT**

Tomato (*Lycopersicon esculentum*) is highly perishable commodity and one of the most convenient methods in extending the shelf life and minimize postharvest losses is by drying. During drying, some nutrients may degrade and thus affect general quality characteristic of the dried tomato. The effect of pre-treatment in enhancing the drying and product quality of dried tomato was investigated in this study. Fresh tomato (Roma Var) were sorted and washed and cut into slices of 3/16" (inch) thickness. Tomato slices were divided into three batches, and randomly assigned to three treatments as follows: dipping in (a) a solution of 0.5% Sodium Metabisulfite for 10 minutes, (b) a 0.1 % Ascorbic acid + 0.1% citric acid solution for 10 minutes (1:1) and (c) distilled water for 10 minutes at room temperature (this was used as control). The samples were placed in a hot air dehydrator (Excalibur 3926T 9 tray food dehydrator, IL, USA) and adjusted to 55°C for six hours. The weights of the samples were recorded every hour during the drying period. After drying, the samples were cooled to room temperature and packed in zip lock bags prior to analysis. Moisture content of tomato samples were determined in triplicate (AOAC 1999), Water activity (aw) was determined using Paw kit Water activity meter (Model Series 3 TE, Decagon Devices, Inc., Pullman, WA, USA). Tristimulus colour, Total Soluble Solids (TSS), Dehydration ratio (DR) and Rehydration test and lycopene content (l g/g total solids) was spectrophotometrically determined on extracts in petroleum ether in triplicate at 505 nm (Gould & Gould, 1988) using a Helios UV–Visible spectrophotometer (Helios gamma, Thermo Spectronic, Madison, USA). The microstructure of the surface of fresh tomato dried tomato slices was generated by scanning electron microscope (JSM -6610LV, JEOL INC, Peabody MA). Results showed that pre-treatment with sodium metabisulphite facilitated the drying of tomato better than the other treatments. All the pre-treated dried tomato samples produced good visual and exhibited a desirable red colour (a\* values ranged between  $24.49 \pm 0.44$ - $28.34 \pm 0.03$ ) which is characteristic of dried tomato products. Pre-treatment with Sodium metabisulphite before convection drying can enhance the lycopene content of dried tomato.