

## **Drying kinetics and sensory evaluation of Amaranth leaves for different sets of pretreated conditions under greenhouse solar dryer and open sun**

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**ABSTRACT :** The proper drying techniques are the most important aspect of leafy vegetable preservation. A Greenhouse type solar dryer was used for the dehydration of amaranth leaves to ensure the availability of amaranth leaves during off season. Fresh amaranth leaves were pretreated by dipping in a solution (leaves to water 1:5 w/w) containing 0.1%  $MgCl_2$  + 0.1%  $NaHCO_3$  + 2% KMS in distilled water for 15 minute and blanching in boiling water containing 3% sodium bisulphate for 2 min. The leaves were dried at 1.5, 2.0 and 2.5  $kg/m^2$  of loading density, under greenhouse type solar dryer and in open sun. Untreated amaranth leaves were also dried as control samples. Analysis of the drying parameters i.e. moisture content, moisture ratio, drying rate and drying time were evaluated to study the effect of drying condition on sensory quality and rehydration characteristics of amaranth leaves. The total drying time considerably reduced under greenhouse type solar dryer (GSD) for chemically treated samples than blanched and untreated. The average drying rate increased with increase in temperature and loading density. Chemically treated samples dried under greenhouse type solar dryer took lesser drying time (7.5 to 8 hrs) than blanched and untreated samples under both the drying methods. The initial moisture contents of amaranth leaves were found in the range between 655.35–727.12 % (db). The amaranth samples took 450 to 660 minutes drying time depending upon drying temperature, drying methods and pretreatments. The product quality was found to be most acceptable for chemically treated amaranth leaves, dried under GSD for the loading density of 2.0  $kg/m^2$ .

**Key Words :** Drying kinetics, Amaranth leaves, greenhouse solar dryer.