

Properties of Water in Various States and Their Utilization in Food Processing

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Summary

H₂O is a simple molecule having a molecular mass of 18, but it possesses unique properties. Water exists in different states, that is, solid (ice), liquid (water) and gas (steam) under ambient conditions. The properties largely depend on the state, and can be controlled by regulating pressure and temperature. Water, which is, in most cases, the major component in foods, plays essential roles in food processing and its unique properties allow utilization in various ways. In this series, recent topics on water and its related food processing are described. The first topic is the role of water in glass transition of food. In the second topic, a new and unique method of cryo-cutting of fish bodies is proposed. A new and effective method of freeze-concentration is described as the third topic. The fourth topic concerns properties of subcritical water and its potential for use in food processing. The last topic is the use of superheated steam in drying or cooking of foods.