FIRST PRINCIPALS
Technology Transfer & Commercialization

FOOD PROCESSING USING COMPLETE FRACTIONATION WITH REVERSE OSMOSIS

The Opportunity

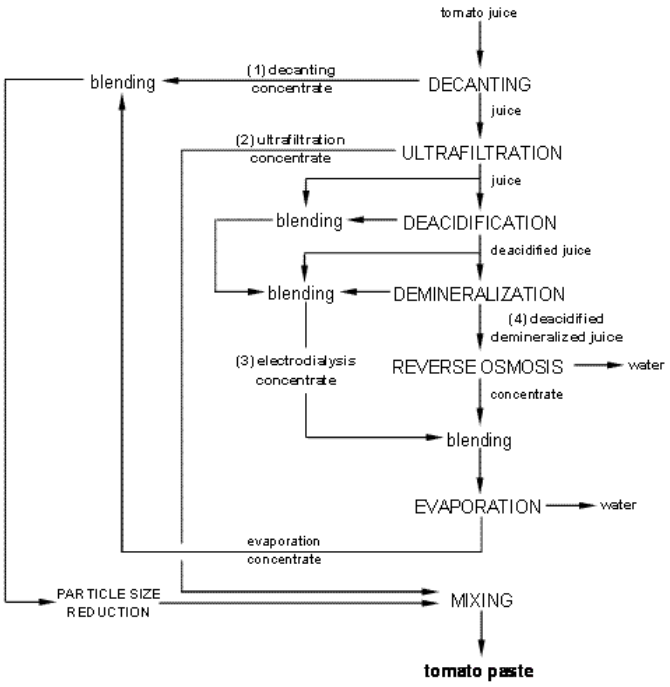
The Billion Dollar Market for processed vegetables and fruits currently uses energy-intensive processes for removal of water to produce vegetable and fruit paste, sauce, and beverage concentrate.

Dr. Constantine Sandu (SANDU) has perfected a process technology that greatly improves the economics of production, retains all of the flavor-producing solids, and can be applied to a wide range of vegetables and fruits.

Technology

The SANDU process is a series of unit operations in a precise sequence to maximize the amount of water removed by a reverse osmosis unit operation for producing tomato paste, tomato juice concentrate, and similar food products from other raw fruit/vegetable juices. At the same time, it minimizes the amount of energy required, and therefore minimizes cost.

SANDU's CFRO (Complete Fractionation with Reverse Osmosis) Technology utilizes an



electrodialysis unit operation (deacidification and demineralization) for the purpose of minimizing the osmotic pressure of the incoming feed stream to the reverse osmosis unit operation, increasing its efficiency and lowering or eliminating the need for an energy-intensive evaporation stage.

The system also utilizes certain process-internal flow streams so that no external carrier liquids are added into the process. All solids are fed back into the final product. This enables a completely closed-circuit process for removal of water, and results in a superior product: the original tomatoes with greatly reduced water and no additives.

SANDU's chief competitive edge lies in:

- **Energy efficiency**
- **Cost reduction**
- **Closed-circuit process**
- **Complete conservation of product solids**
- **Superior Product**

Intellectual Property

Two patent applications "Complete Fractionation With Reverse Osmosis in Food Processing" have been filed with the US Patent Office. The patent covers the energy-efficient CFRO process system removal of water from fruits and vegetables while conserving all of the flavor-producing solids.

For More Information

SANDU is seeking qualified companies to bring its innovative new technology into commercial use in targeted application areas. We welcome offers to license or acquire this valuable intellectual property.

For more information, contact:

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