

Scientist at CIAB found atmospheric cold plasma technique improves quality parameters of tomato-based beverage during storage

By Dr. Bilqeesa Bhat

Research conducted by Dr. Sudesh Kumar Yadav's team at Mohali based research institute, the Center of Innovative and Applied Bioprocessing (CIAB) reported that atmospheric cold plasma (ACP) processing technology helped to improve quality parameters of tomato-based beverage during storage. Team found that ACP helps to retain maximum ascorbic acid content and improves the quality of tomato-based beverage. It was found to be an efficient processing method which reduced maximum microbial- and mold count in beverage.

Besides, assessing the impact of atmospheric cold plasma (ACP) processing, team also studied the effect of thermal (pasteurization) and non-thermal (ultrasonication, ultra-violet) on quality of tomato-based beverage. It was reported that all the processing techniques except ACP processing technique degraded the ascorbic acid content in it.

ACP processing has emerged as one of the best processing method for retaining as well as improving the quality of the beverage. ACP may be an advantageous processing for developing fruit based beverage in terms of maintaining its nutritional quality and other acceptable parameters. Therefore, from an industrial point of view, non-thermal processing methods can be advantageous treatments over pasteurization for processing of beverages.

Fruit and vegetable-based beverages are considered as an instant source of natural bioactive compounds. Such beverages confer various health benefits to human beings upon its consumption. Among them, tomato is the most consumed vegetables worldwide and it is considered as a popular functional food owing to its carotenoid- and phenolic content.

The food processing is an important way to increase the shelf life and nutritional quality of food produce and decreasing the post-harvest losses. The type of processing has great influence on the quality of functional food products. Thermal processing such as like pasteurization, of beverages is a commonly used processing method that confers extended shelf-life, and provides stability to beverages. However, heating may deteriorate the quality of beverages by affecting on nutritional component.

Dr. Yadav's team members including Mr. Deepak Mehta, Dr. Nitya Sharma, Dr. Vasudha Bansal and Rajender S. Sangwan have recently published the research work in the *Innovative Food Science & Emerging Technologies*, and an Indian patent has also been filed for the technology.

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