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## Exploration of ohmic-sonication technique for the shelf life extension of apple juice

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**Objective:** Apple juice is pivotal food commodity naturally consumed for its nutrition rich and health promoting attributes for normal and diseased persons. **Methods:** Current research was performed to evaluate the nutritional composition, physico-chemical composition, microbiological and sensorial stability of apple juice subjected to different treatments of ohmic heating – sonication techniques as T1 (ohmic heated at 75°C for 60 sec at 220V), T2 (sonicated at 8 min at 20 kHz), T3 (ohmic-sonication at 75 °C for 60 sec at 220 V), and T4 (ohmic-sonication 8 min at 20 kHz). **Results:** The results elucidated significant ( $p < 0.05$ ) reduction in pH values of apple juice from T0 – T4 from 3.78 – 3.5, respectively. Among the total carotenoids T3 (sonication-ohmic) showed the highest contents i.e., 108  $\mu\text{g mL}^{-1}$ . The storage resulted in significant ( $p < 0.05$ ) in antioxidant activities (i.e., DPPH activities) of apple juice from T0 – T4 from 289 – 317  $\mu\text{g/g}$ , while among the treatments the highest DPPH activities were noticed in T3. The maximum vitamin C was found in T3 i.e., 5.92% on 14th day of storage. Titratable acidity increased from 0.31 to 0.45 on storage apple juice from 0 – 14th day of storage. The total soluble solids significantly ( $p < 0.05$ ) increased from 9.9 – 13.4% from T0 – T4 on storage of 0 – 14th day. While, the microbial numbers revealed the increase in log CFU/mL from 0.91 – 2.31 on storage of 0 – 14th day. Overall sensory acceptability showed the highest acceptability of the apple juice was T3 which showed the highest color, flavor and overall acceptability of apple juice. **Conclusion:** Conclusively, the research shows potential use of ohmic heating–sonication at 75 °C for 60 seconds at 220 V as a viable strategy of choice for shelf life extension of value added foods products to extend the shelf stability and to improve the microbiological safety of apple juice.