**Exploring the dynamics of microbial community during traditional apple cider vinegar production**

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**‌ Statement of Problem:** Traditional fermentative food products including vinegar, dairy product and … contain a variety of microbial populations. In Iran, a large quantity of apple cider vinegar is produced annually by traditional methods, however, its microbiota has not been investigated yet. In addition, there is still no deep insight into the effect of physicochemical conditions on the dynamics of microbiota during apple cider vinegar production.

**Research Purpose:** To get an insight into the dynamics of microbiota during apple cider vinegar production, we enumerated different kinds of microorganisms such as yeasts, molds. and bacteria.

**Research Method:** in this research, we produced apple cider vinegar under controlled conditions at 30ºC. In addition, good manufacturing practice (GMP) was used. At certain intervals of time, samples were collected. Then, acetic acid bacteria (AAB), lactic acid bacteria (LAB) and yeasts were enumerated using various culture media. In addition, some of the most important metabolites such as ethanol, acetic acid, glucose and the profile of amino acids were determined. The microbial isolates were identified based on a combination of phenotypic, biochemical and molecular methods including 16S rRNA gene sequencing. **Results and Conclusion:** In this study, it was revealed that a great population dynamics exists during vinegar production. Different species of LAB are appeared and identified during different stages of production. Some of them may have probiotic characteristics.

**Keywords:** Apple cider vinegar, Lactic acid bacteria, Microbiota, Population dynamics