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## LIST OF ABBREVIATION

<b>AAs</b>	Amino acids
<b>AOAC</b>	Association of Official Analytical Chemists
<b>BCAA</b>	Branched chain amino acids
<b>BMD</b>	Bone mineral density
<b>EAA</b>	Essential amino acids
<b>Fuc</b>	Fucose
<b>GPx</b>	Glutathione peroxidase
<b>GR</b>	Glutathione reductase
<b>GSH</b>	Reduced glutathione
<b>GMP</b>	Glycomacropeptide
<b>MP</b>	Milk permeate
<b>MPs</b>	Microparticles
<b>PCA</b>	Plate count agar
<b>RDA</b>	Recommended Daily Allowance
<b>SAS</b>	Statistical Analysis System
<b>SGJ</b>	Simulated gastric juice
<b>TA</b>	Titrateable acidity
<b>TGase</b>	Transglutaminase
<b>TBC</b>	Total bacterial count
<b>TSS</b>	Total soluble solids
<b>UA</b>	Uric acid
<b>UF</b>	Ultrafiltration
<b>VCO<sub>2</sub></b>	Volume of Carbon dioxide
<b>WP</b>	Whey protein
<b>WPC</b>	Whey protein concentrate
<b>WPH</b>	Whey protein hydrolyze
<b>WPI</b>	Whey protein Isolate
<b>WPMs</b>	Whey protein microcapsules



## ABSTRACT

**Rasha Abd Elaal Ibrahim Morsy: Production of Dairy Foods for Special Dietary Uses. Unpublished PhD. thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, 2017.**

The current study was designed to prepare and evaluate the sport drinks based on sweet whey or deproteinized sweet whey or ultrafiltration(UF) milk permeate. Sixteen treatments were prepared using aforementioned types in addition to water as control treatment. All treatments were flavoured with mango, orange and carrot, carrot, and guava pulp. Ginseng was used at the level of 0.025%(w/v). Chemical, microbiological, and organoleptic properties were determined during storage for 4 months at 4°C . The results show that the acidity of all treatments slightly increased during storage. The total carbohydrates were higher than control in all treatments. Sweet whey had higher protein and viscosity while it had lower moisture compared to other treatments. All treatments showed significant differences in vitamins B, C, and  $\beta$ -carotene content. Treatments were flavoured with mango pulp revealed the highest content of K, Na, P, Ca. Mango flavoured treatments gained the highest score between all treatments. The evaluated colour parameters included lightness (L-value), redness (a- value), yellowness (b-value), chroma(C-value), Hue(H-value) and total colour index( $\Delta E$  value) concluded that the use of whey instead of water in preparation of fruit pulp sport drinks resulted in increased L-value, simply as a result of presence proteins, fat and calcium in whey. The redness (a-value) of the prepared beverages showed negative sign indicating the greenish colour shade of the beverages. Guava pulp-permeate sport drinks showed more greenish colour shade. All prepared sport drinks showed more or less intensive yellow colour shade (b-values) except Guava-whey sport drinks which showed a slight blue colour shade(negative b-values). Mango pulp gives the drinks more saturated colour than did the other pulp may be

because of its higher carotenes content. The results obtained from the sensory evaluation of sports drinks generally showed a preference mango pulp sweet whey sport drinks followed by orange&carrot sweet whey sport drinks. Glycomacropeptide(GMP), *L.helveticus* capsules and ABT culture were used. All treatments were flavoured with mango pulp at level of 25%(v/v).Chemical, microbiological and organoleptic properties were determined during storage for 28days at 4°C .The obtained results showed that the acidity of all treatments increased during storage. The treatments containing GMP and *L.helveticus* capsules had higher total carbohydrate , protein, specific gravity and viscosity while it had lower moisture compared to other treatments. The cell counts of LAB strains were still above the minimal count at the end of storage especially in the treatments based on sweet whey. Organoleptically, all treatments exhibited satisfactory acceptability. Treatments based on UF milk permeate with *L.helveticus* capsules and GMP gained the highest score between all treatments. Fermented sweet whey was more acceptable than other sweet whey treatments.

**Key words:** Sweet whey, deproteinized sweet whey, milk permeate, ginseng , glycomacropeptide, capsules, *lb.helveticus*