Advance Journal of Food Science and Technology 7(6): 395-397, 2015
DOI:10.19026/ajfst.7.1330
ISSN: 2042-4868; e-ISSN: 2042-4876

Submitted: September 07, 2014 Accepted: October 12, 2014 Published: February 25, 2015

Research Article

Research of Thelenota Ananas Sports Drinks Action to Race Walking Athletes

Xingsheng Chen
P.E. Department, Shanghai University of Electric Power, Shanghai 200090, China

Abstract: This research begins with the reality, trying to develop a kind of compound protein drinks, Thelenota Ananas provided for the professional athletes and sportsman, optimizing its producing technology, studying its impact on sports. The results showed us that: taking sports drinks can have the following effects on the human body: (1) Keeping high intensity exercise for a long time, which can maintain high levels of glucose, meanwhile the level of serum potassium and magnesium ion is stable after exercises; (2) It can reduce the amount of blood lactate within the quantitative exercise, which can accelerate the recovery of the blood lactic acid after the exercise; (3) The amount of Blood Urea (BU) decreased, while the amount of SOD in the blood serum increased obviously in the second day, which can significantly reduce the feeling of fatigue.

Keywords: Effections, protein, Thelenota Ananas drinks

INTRODUCTION

With development of the competitive sports, the competition is fiercer than ever, athletes are also getting closer and closer to the limits of human ability to continue to create new results, it must be the uninterrupted engaged in more than the limits of human training. Sports nutrition athletes in overload training and competition need strong nutrient base. Thelenota Ananas sports drinks is a kind of pure natural plant beverage, which takes plum juice as matrix, Gynostemma pentaphyllum saponins as the major biologically active substance. Gynostemma pentaphyllum contains rich nutrients, with the reputation of "Southern ginseng", which has been listed as "the key developing projects of the spark plan" by the country. A large number of studies showed that, Gynostemma pentaphyllum had anti lipid peroxidation, with obvious anti fatigue effect. Studies showed that oxygen free radicals, especially hydroxyl free radical had strong toxicity, combined with the free or unsaturated fatty acids, which could occur peroxidation (lipid peroxidation) and result in the destruction of biological membrane, causing damage to the tissue cells (Wei, 2007). Research on exercise and free radicals showed us that, large amount of exercise training could result in the increase of free radicals produced *in vivo*, which became one of the main reasons for exercise-induced fatigue.

MATERIALS AND METHODS

Under the state of human motion, the consumption of body's energy increased more, so which made the material and energy metabolic activity stronger, leading to the increased consumption of energy in the process of physical movement. During the process of material and energy metabolism in motion, in order to maintain the heat of the body balanced, the loss of the body water as well as electrolyte is increased; the activity of various metabolic enzymes should be further enhanced under the state of movement. Therefore, during the process of sports, the reasonable supplement of the nutritional substance is favorable to eliminate the fatigue of the exercise and recover the exercising capacity as well.

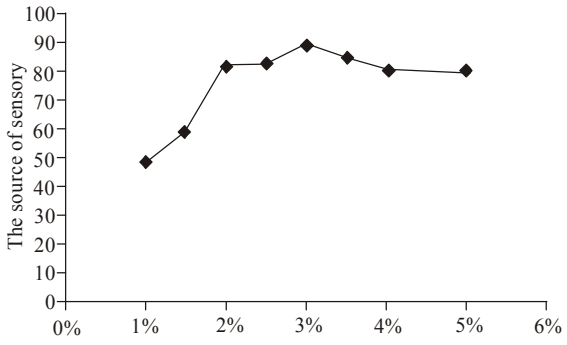

Fig. 1: The ration of protein

After the athletes engaged in a large number of overload training and took part in the game, the body of the player will occur the phenomenon of water loss, electrolyte loss, protein catabolism increased, disorder fiction of the cell membrane osmosis, the leakage of intracellular enzyme, etc. While sports drinks can quickly supply water, electrolyte and energy substances for the body, which can effectively prevent the dehydration during the process of the athletes have

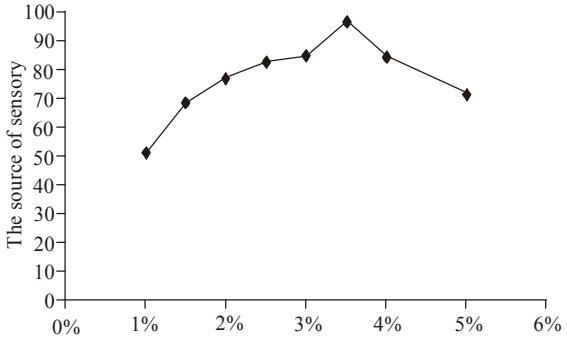

Fig. 2: The ratio of sucrose and oligosaccharides to the mixture is 1:1.5/%

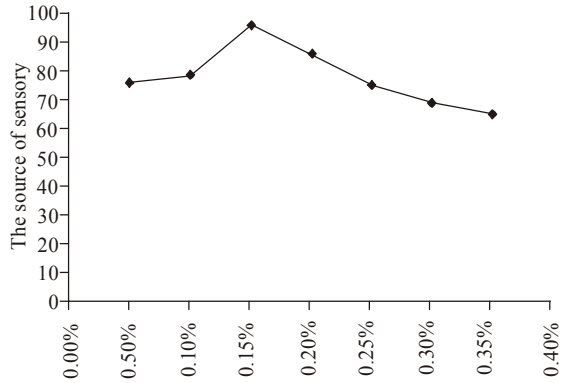

Fig. 3: The additive volume of thickener/%

exercises, maintain and promote the balance of the body fluid and improve exercise capacity and recover the restoration of physical fitness (Fei, 2002).

The experiments compared the effects of the amount of whey protein on the beverage flavor, taste and other acceptable sensory degree, the result obtained from the test is as shown in Fig. 1.

The determined volume of sucrose and oligosaccharides: The experiments compared the effect of the amount of the mixture of pilose antler polysaccharides and oligosaccharides on the acceptable sensory degree of the beverage, the result of the test is as shown in Fig. 2.

The determined additive volume of acidulant: Mix citrate and malate according to 1:1, the obtained mixture can be as acidulant. The experiment compared the effect of the additive volume of acidulant on the acceptable degree of the beverage, the result is as shown in Fig. 3.

As we can see, with the increase of the additive volume of thickener, the scores of the sensory acceptable degree of the drinks also increased, when the thickener content reaches 0.15%, the sensory score the highest, the beverage taste, flavor and transparent effect is best, but with the increasing of thickener content continues to drink, the acceptable degree of sensory scores begins to decline (Liu and Xiong, 2009). Through analyzing the data that $p<0.05$, which showed the additive volume of thickener had significant effect on the sensory acceptable degree if the drinks, so the volume of the additive volume of the thickener of this drink was determined to be 0.15%.

RESULTS AND DISCUSSION

This experiment showed us that, in the incremental test of the athletes before and after the exercise, although the athlete's cardiovascular function was significantly improved in the compared group and the experimental group, the heart rate of athletes in the experimental group is recovered more rapidly than that of the athlete in the compared group after incremental exercise. The results showed that whey protein supplement drinks can quickly promote the recovery of the body after exercises. Moreover, after the athletes supplied with the whey protein drinks, it had played a certain role in promoting the athletes' quality and physical recovery (Deng, 2006). It was found out in the experiment that after the athletes had twelve weeks of training, in the test of incremental exercise, the level of blood lactate after the athletes had exercises was decreased obviously ($p<0.05$) in the experimental group. Drinking whey protein beverage can improve the athlete's aerobic capacity of skeletal muscles, which can also increase the athlete's body fat. Moreover, the results of the athlete's physical quality test and performances showed that supplying with whey protein beverage had a certain role in promoting the athletes' physical quality and the restore of the physical energy.

Research on the effect of sports drinks on sports fatigue and recovery: In recent years, the scholars have done a lot of experimental studies about the effect of sports drinks on the movement ability. Yuan *et al*. (2011) supplied seven healthy college students with glucose-electrolyte beverage as the supplement of after the symptoms of dehydration caused by low O_2 training, which obviously improved the phenomenon of dehydration and recovered the water balance of the body. Wei Bing and someone else observed the effect of sports drinks on the athletic ability, the elimination of fatigue, the regulation of the functions, etc. Research showed that the sports drinks can make the subjects keep higher level of blood sugar for a long time with intensity exercise, after the exercises, the level of serum potassium and serum magnesium is stable, it can reduce the level of the blood lactic acid in the quantitative exercise and accelerate the recovery of blood lactate after exercises, which can significantly reduce the fatigue feeling of the subjects (Li, 2010). Fei (2002) observed the changes of the little mice after exhaustive swimming and after the exhaustive swimming, it is supplied with S863, a kind of natural juice made of

vegetables and fruits (S863 natural fruit juice is a natural antioxidant beverage with a variety of fruits and vegetables and edible Chinese herbal medicine as the raw materials through the scientific preparation), The changes of the activity of Superoxide Dismutase (SOD) of the livers and the volume of malondialdehyde (MDA) as well as the ultrastructural changes of the livers. Research showed that, S863 natural fruit and vegetable juice had strong scavenging activity on the free radical of the superoxide anion, which could suppress the lipid peroxidation with excellent properties of antioxidant.

CONCLUSION

The result of the human experiment that Thelenota Ananas sports drinks can promote physical recovery after exercises showed that, taking Thelenota Ananas sports drink a month can make the recovery of the heart rate of the athlete who does anaerobic and aerobic exercise in the experimental group within 15 min faster than that of athlete who drinks before. It showed that this kind of beverage can contribute to the recovery of heart rate after having aerobic exercises. After having aerobic exercises, the recovery of the heart rate in the compared group who drinks after is slower than that of athlete who drinks before, which is probably because of the large amount of exercises during the winter training, with the accumulation of fatigue that is not easy to recover. But after drinking Thelenota Ananas sports drinks in the experimental group, after having aerobic exercises, which indicated that this kind of beverage contributes to eliminating the accumulation of fatigue caused by the training, playing a role in promoting the recovery.

REFERENCES

Deng, Y.L., 2006. Bayi team triathlon sports drinks compound effect experiment. Sichuan Sports Science, pp: 33-39.

Fei, Y., 2002. S863 natural fruit and vegetable drinks and exhaustion exercise mice liver effect of free radical metabolism and ultrastructure. Hubei Sport. Sci. Technol., 21(4): 408-413.

Li, S., 2010. Individualized supplement anti-fatigue and promote recovery drinks affect blood glucose response of human movement and physical recovery. J. Xi 'an Inst. Sport, 27(3): 325-330.

Liu, X.J. and Y.Y. Xiong, 2009. The supplement and the function of sports drinks. J. Adult Educ. Coll. Shaanxi Norm. Univ., 16(2): 115-116.

Wei, B., 2007. Sports drinks to the metabolism of human movement and exercise ability. J. Chinese Food, 3: 37-41.

Yuan, Z., Z.B. Li and S.J. Zhang, 2011. Development of agricultural product processing industry under constructing core area of He'nan province. Acad. Period. Farm Prod. Process., 7(1): 95-97, 103.