

## **PROSPECTS FOR THE USE OF ACTIVE CALCIUM EXTRACTED FROM TUNA BONES IN FOOD**

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Tuna is called “submarine gold” which is rich in nutrients and active substances and also tasty. Tuna meat is low in fat, low in calories, and has high-quality protein and other nutrients. Eating tuna food not only maintains a slim figure, but also balances the nutrients needed by the body. It is an ideal choice for modern women to lose weight easily.

Tuna oil is a quality brain health product. Tuna is rich in DHA, an unsaturated fatty acid that humans cannot produce. It is one of the essential nutrients for normal brain activity. DHA can enter the brain through the blood brain barrier to increase and extend the synapses of the brain nerve cells, thereby increasing brain capacity, enhancing memory, understanding, and frequent consumption, which is conducive to the regeneration of brain cells, improve memory, and prevent Alzheimer's disease. In addition, DHA can soften the retina, improve retinal reflex function, strengthen vision, prevent myopia, and EPA can promote DHA in the body.

*Katsuwonus pelamis* is one of tunas with high level of commercial value. *Katsuwonus pelamis* are mainly processed to be dried products. Such as cans, frozen products. But there are a lot of by-products in the processing of tuna, like bones, skins, heads, etc., These by-products are mainly processed into low-value feeds by enterprises, so the economic benefits are very low. In order to rationally use the *Katsuwonus pelamis* resources, it should be useful to selected the bone of *Katsuwonus pelamis* as a raw material for research.

Because tuna is a hard-bone fish, it is not suitable for making edible fish bones, but it can be processed into fish bone meal, made into natural calcium supplement products.

It was studied the process of extracting active calcium from *Katsuwonus pelamis* bone calcium by using citric acid malic acid. The effects of malic acid ratio, acid concentration, extraction time and extraction temperature on the extraction rate of fish bone calcium were investigated.

The fish bones were washed, placed in a 0.15% citric acid solution, and steamed for 30 minutes under high pressure. After taking out, the adhered minced meat, fish tendons and other impurities were removed, and then washed and placed in an oven, and dried at 85. The dried fish bones were pulverized by an ultrafine pulverizer and sieved to obtain white fish bone meal.

In addition, integrate tuna bone calcium into biscuits to produce a nutritious and healthy snack food is very interesting. This allows receiving a new product with good functional properties.