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TO STUDY METHODS OF PROCESSING OIL OBTAINED FROM SOYBEAN RAW MATERIALS

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ИЗУЧЕНИЕ СПОСОБОВ ПЕРЕРАБОТКИ МАСЛА, ПОЛУЧЕННОГО ИЗ СОЕВОГО СЫРЬЯ

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ABSTRACT

In the production of low-cost quality vegetable oils from local raw materials, not only the press, but also the extraction method has its own importance, although 30% of the extracted oils are extracted using this method. This prompts them to review their security criteria and even rethink existing technology. In the course of our research, we have studied the methods of processing the oil extracted from soy raw materials by the method of pressing and extraction.

АННОТАЦИЯ

При производстве недорогих качественных растительных масел из местного сырья свое значение имеет не только пресс, но и метод экстракции, хотя 30% добываемых масел экстрагируется этим методом. Это побуждает их пересматривать свои критерии безопасности и даже переосмысливать существующие технологии. В ходе наших исследований мы изучили способы переработки масла, полученного из соевого сырья, методом прессования и экстрагирования.

Keywords: soybean oil, glyceride, vegetable oils, peroxide, iodine, alkali, cottonseed, acid number.

Ключевые слова: соевое масло, глицерид, рафинация, дезодорация, растительные масла, перекись, йод, щелочь, хлопковое, кислотное число.

Alkaline refining of soybean oil can be done on crude or hydrogenated oil. Because the market for soybean lecithin is much smaller than potential production, in practice in the United States, where lecithin is not extracted, crude soybean oil is refined by sending the lecithin to soapstock. The conventional explanation for this is that the loss of neutral oil during crude oil processing is less than the loss during hydration and subsequent refined oil processing.

The scavenging effects of the following alkalis were studied: sodium hydroxide, potassium hydroxide and sodium bicarbonate. Almost the only substance currently used in soybean oil refining processes is sodium hydroxide. Choosing the amount and concentration of NaOH to use in soybean oil processing is critical.

The use of alkaline solutions to remove non-glycerides and free fatty acids is an effective method, but this can cause hydrolysis or saponification, which leads to increased losses during the purification process. The overall goal of alkaline cleaning is to achieve maximum quality with minimum losses.

Virgin refined soybean oil is pure oil from which all free fatty acids and non-fatty matter have been removed by chemical action and physical or mechanical separation. The main requirements for refined soybean oil are presented in Figure 1.

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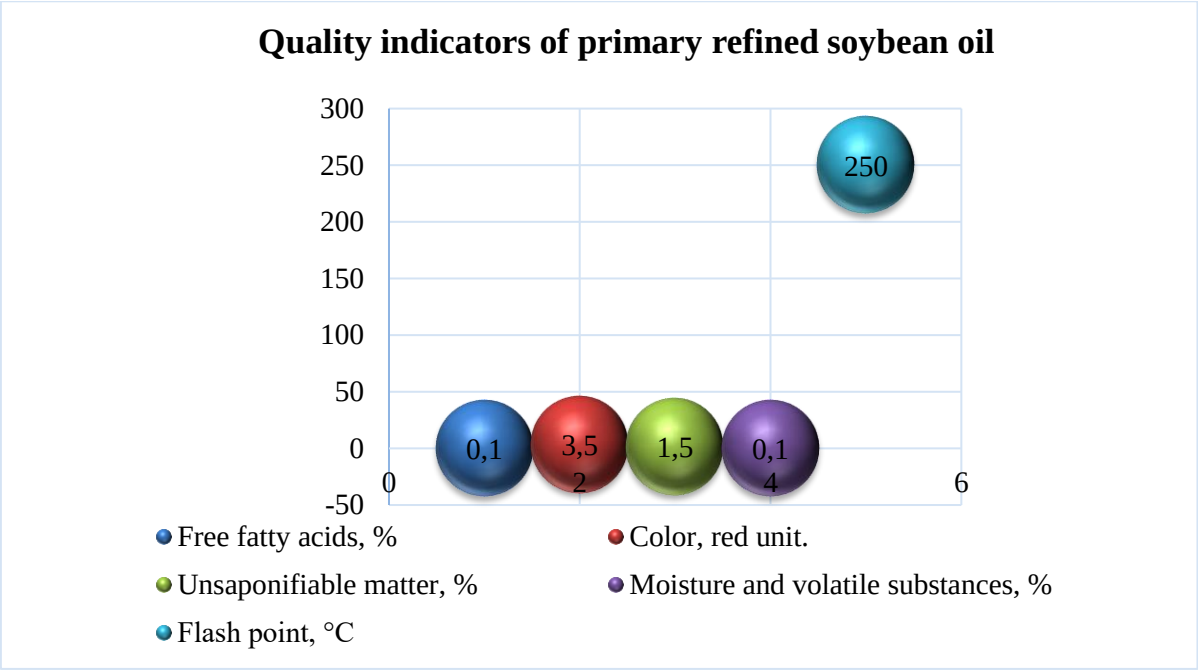

Figure 1. Quality indicators of primary refined soybean oil

Refined soybean oil is pure, clear oil from which all coloring matter and related materials have been removed by adsorption and deodorization, which give the oil its unpleasant odor and taste. The requirements for fully refined and refined soybean oil are shown in figure 2.

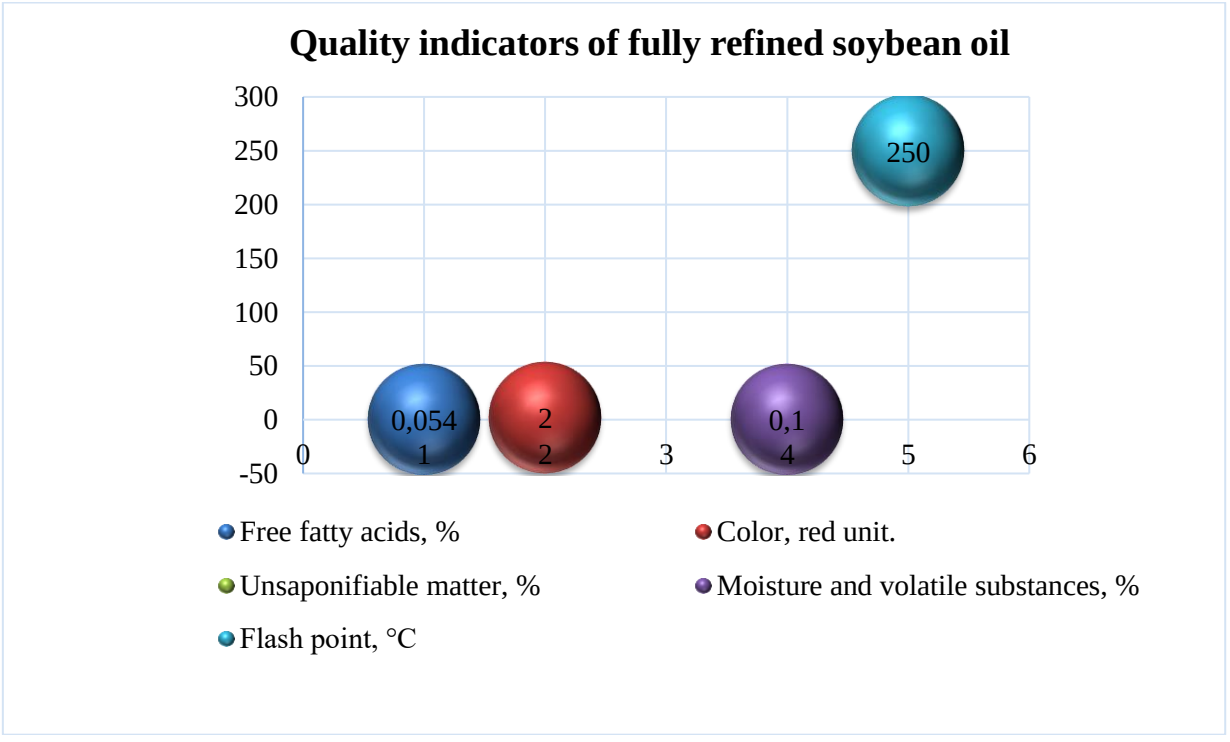

Figure 2. Quality indicators of fully refined soybean oil

At our oil plants, soybean oil is obtained by pressing soybean petals and extracting soybean kernels using extraction gasoline. In the technological process at this stage, the product is subjected to a lot of heat treatment. The resulting unrefined soybean oil is difficult to purify.

At "Fergana oil and oil" JSC, we studied the method of processing soybean oil obtained by the press method. The quality indicators of the starting oil are as follows: = 2.6 mg / KOH, Color - 60 mg iodine, moisture - 0.15%.

The soybean oil obtained by the press method is neutralized at a temperature of 55-60 °C, the cleaning process is carried out for 30 minutes using a caustic soda solution with a concentration of 110 g/l to 140 g/l, more than 20% more than the theoretically necessary amount.

increased. After quenching the refined oil, the soapstock was separated, the oil was washed with hot, softened water, condensate to a neural state, and then dried at a temperature of 100-105 °C.

The results of determining the effect of the concentration of the alkali solution on the level of removal of iodine substances, reducing the loss of oil and increasing the yield of purified soybean oil are presented in figure 3.

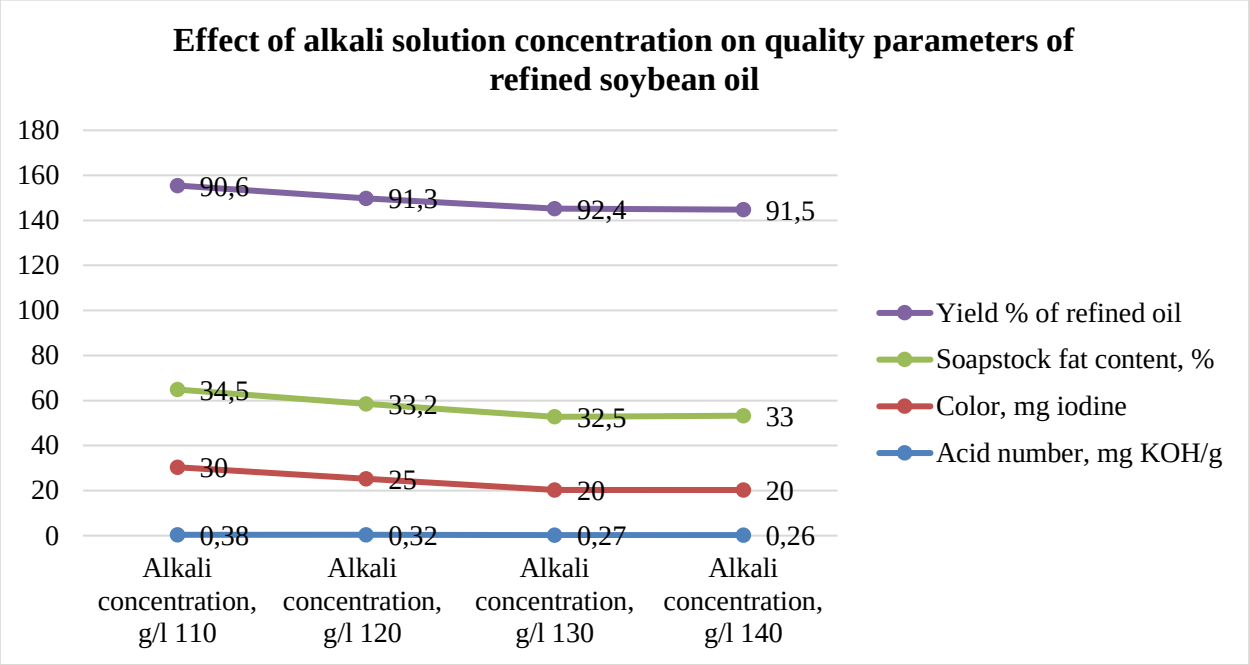

Figure 3. Effect of alkali solution concentration on quality parameters of refined soybean oil

As can be seen from the data in the figure, with the increase in the concentration of caustic soda solution, the acid content and color of the purified soybean oil decrease and the yield increases, the highest results were obtained when the concentration of the alkali solution was 130 g/l.

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