Influence on The Degree of Increase in Natrium Metabisulphite White Bread Flour

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Abstract

There are many crops and vegetables are grown in Indonesia including breadfruit tree. Breadfruit trees may be seen in Indonesia, among others, in Cilacap, Semarang, Purwodadi, Demak, Rembang. Breadfruit tree produces fruit, usually we call breadfruit. Breadfruit if not sold will be rotten. We tried to create an alternative treatment that breadfruit can be durable in a way to make breadfruit into flour. in making breadfruit flour, soaking time is very influential on the increase in the degree of white on breadfruit flour natrium metabisulphite solution at each concentration used, the optimum soaking time is 55 minutes. The use of natrium metabisulphite solution with various concentrations also affects the degree of increase in white on breadfruit flour produced, the optimum concentration of sodium metabisulphite solution is 0.8%.

Keywords: breadfruit, breadfruit flour, white degrees

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Introduction

Breadfruit fruit bread known as among the international. (Winarno, 2000). Breadfruit (Artocarpus altilis) grow in Indonesia, Philippines and parts of West Africa, Central and South America, South Asia, India and Sri Lanka. We can find breadfruit at local markets in these areas, especially Indonesia. (Fosberg et al, 1997).

Breadfruit tree is a plant that grows and multiplies quickly so widely grown in tropical regions such as in Indonesia. Breadfruit trees also can be used also as an ornamental plant. Peterson (2006) expressed strong development of hybrid cultivars of breadfruit cause "Breadfruit Revolution" 600-1200 years ago. Breadfruit revolution is a major driver of socio-cultural evolution in Micronesia. Breadfruit trees are often planted in home gardens, on the edge of the forest roads and secondary forests. Breadfruit spherical or cylindrical, rough-skinned with yellowish green colour, diameter 10-30 cm with a weight between 2-5 kg and no seed. Breadfruit can be eaten once produced through the process of frying, steaming, and processed into flour as a base for the manufacture of snack food. With the wide variety of breadfruit utilization, it can help the economic and revenue people in the tropics. Colour of breadfruit flour produced depends on the variety and maturity level of the breadfruit, breadfruit flour colour generally white. Breadfruit flour starch content of around 20%. (The encyclopedia of fruit & nuts, by Jules Janick and Robert E. Paul).

Breadfruit may be seen in farmers markets breadfruits as well as in traditional markets. If not processed further, it will be a fast decay breadfruit. Breadfruit and the price is lowered, therefore, the need for processing becomes breadfruit flour. The degree of whiteness analysis was conducted to determine physical quality of breadfruit flour.

Starch was isolated from breadfruit. It was further modified by oxidation, acetylation, heat-moisture-treatment and annealing. The functional properties of native and modified starches were then studied. Proximate analysis revealed that following modifications for oxidised (BOS) starches. (Adebawale et. All, 2005)

Methods

Breadfruit were purchased from a local market. Breadfruit were washed with tap water to clear dirt. Slicing breadfruit and immersion in a solution of natrium metabisulphite. The slices were dried using dryer. The flour was obtained by milling the dried slices using a grinder and sieved through an 80 – mesh to make breadfruit flour. Breadfruit flour then analysed the degree of whiteness.

Result and Discussion

Flour-making is done by slicing breadfruit and then soaked with a solution of 0.4% Na metabisulphite with soaking time 15, 25, 35, 45, 55 minutes then drying in an oven, followed by flouring of...
breadfruit. The degree of whiteness analysis was conducted to breadfruit flour. Effect of soaking time on the degree of white on the addition of a solution of 0.4% Na metabisulphite (Figure 2).

![Figure 2. Effect of soaking time on the degree of whiteness](image)

The results of the analysis show increasing in degree of whiteness of 95.03 in 15 minutes soaking time becomes 95.07 at immersion time 55 minutes. From the results of this analysis indicate that the breadfruit flour soaking time is directly proportional to the increase in its whiteness. Above experiment was repeated at the same time variable (15, 25, 35, 45, 55 minutes) but with the use of Na metabisulphite solution concentration is 0.5% different. Effect of soaking time on the degree of white on the addition of a solution of 0.5% Na metabisulphite (Figure 3).

![Figure 3. Effect of soaking time on the degree of whiteness](image)

The analysis shows an increase in the degree of whiteness of 95.08 at immersion into a concentration of 0.5% Na metabisulphite solution 55 minutes from the results of this analysis indicate that the breadfruit flour soaking time is directly proportional to the increase in its whiteness. Above experiment was repeated at the same time variable (15, 25, 35, 45, 55 minutes) but with the use of Na metabisulphite solution concentration is 0.6% different. Effect of soaking time on the degree of white on the addition of a solution of 0.6% Na metabisulphite (Figure 4).

![Figure 4. Effect of soaking time on the degree of whiteness](image)

The analysis shows an increase in the degree of whiteness of 95.13 at the time of immersion into a concentration of 0.6% Na metabisulphite solution 55 minutes from the results of this analysis indicate that the breadfruit flour soaking time is directly proportional to the increase in its whiteness. Above experiment was repeated at the same time variable (15, 25, 35, 45, 55 minutes) but with the use of Na metabisulphite solution concentration is 0.7% different. Effect of soaking time on the degree of white on the addition of a solution of 0.7% Na metabisulphite (Figure 5).

![Figure 5. Effect of soaking time on the degree of whiteness](image)

The analysis shows an increase in the degree of whiteness of 95.19 at the time of immersion into a concentration of 0.7% Na metabisulphite solution 55 minutes from the results of this analysis indicate that the breadfruit flour soaking time is directly proportional to the increase in its whiteness. Above experiment was repeated at the same time variable (15, 25, 35, 45, 55 minutes) but with the use of Na metabisulphite solution concentration is 0.8% different. Effect of soaking time on the degree of white on the addition of a solution of 0.8% Na metabisulphite (Figure 6).
Figure 6. Effect of soaking time on the degree of whiteness

The analysis shows an increase in the degree of whiteness of 95.25 to 95.29 in the 15 minutes immersion time and 55 minutes. From the results of this analysis, it indicates that the breadfruit flour soaking time is directly proportional to the increase in its whiteness.

Conclusions

Soaking time is very influential on the increase in the degree of white on breadfruit flour on each natrium metabisulphite concentration used, the optimum soaking time is 55 minutes. The use of natrium metabisulphite solution with various concentrations also affects the degree of increase in white on breadfruit flour produced, the optimum concentration of Na metabisulphite solution is 0.8%.

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References


The encyclopaedia of fruit & nuts, by Jules Janick, Robert E. Paul, p. 476


Presentation Discussion

Da costa: Is it possible to process this flour into pasta?

A: Yes, but we need more experiment and knowledge about its characteristics