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STUDY**

**OXALIC ACID FROM *Ananas comosus* and *Averrhoa bilimbi* AS ALTERNATIVE
BLEACHING STAIN REMOVER**

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ABSTRACT

OXALIC ACID FROM *Ananas Comosus* and *Averrhoa bilimbi* AS ALTERNATIVE BLEACHING AGENT

In our daily lives, we frequently encounter various stains, such as mud, rust, makeup, tea, and cooking oil. Clorox, which is well-known for its bleaching properties, is used to remove these stains. The active ingredient in Clorox is sodium hypochlorite. However, this compound is toxic as it is corrosive and can cause harmful effects on our health and environment. As an alternative, oxalic acid can be used for stain removal due to its effective bleaching and chelating properties. In this study, the concentration of oxalic acid in *Ananas comosus* (pineapple) and *Averrhoa bilimbi* (bilimbi) fruits was determined using high-performance liquid chromatography with ultraviolet detection (HPLC-UV). Additionally, this study also aims to formulate a stain remover using extracts from these fruits. The results showed that *Averrhoa bilimbi* contain a higher concentration of oxalic acid compared to *Ananas comosus* with concentrations of 1581.03 ppm and 965.75 ppm. The stain remover was prepared with five formulations where the ratio of each extract was different. Then the formulation was test with stains in the cotton cloth and visibility test was conducted to observe the extract effectiveness in removing stain from the cloth. The result showed that the preferred formulation is F1 and F2, with F1 containing 100 ml of *Averrhoa bilimbi* fruit extract only and F2 containing 25 ml of *Ananas comosus* and 75 ml of *Averrhoa bilimbi* fruit extract. Hence, the most extract from *Averrhoa bilimbi* fruits manage to remove some stains better than other formulations in 10 minutes. The pH test also shows that the pH of this formulation is lower than a commercialized stain remover. Thus, it is proven that both species can be used as an alternative stain remover and safe to be touch.

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