

ABSTRACT

PRISKA ANYELINA. 2024. **“Effect of Dragon Fruit Peel Extract (*Hylocereus polyrhizus*) on Physical and Chemical Characteristics of Soap Produced through Cold Process Method”**. Department of Biology Education, Faculty of Teacher Training and Education, Siliwangi University, Tasikmalaya.

Dragon fruit is a member of the Cactaceae family which includes cactus-type plants and is invasive with extraordinary adaptability. Dragon fruit skin can be used as a bioactive compound because of its high antioxidant content to increase the economic value of soap while overcoming organic waste pollution. The purpose of this study was to determine the effect of dragon fruit peel extract on the physical and chemical characteristics of soap produced through the cold process method. This research was conducted in August - September 2024. The research method used is True Experimental with a completely randomized design (RAL) experimental design. The population is dragon fruit skin with 200 grams of simplisia and the sample is the extract obtained through the Maceration Method. The number of sample variations added to the soap formulation starts from concentrations of 1.5%, 2%, 2.5%, and 3%. The study was conducted for 14 days with data collection on day 1, day 7 and day 14. The research instrument used the parameters of the quality requirements of the Indonesian National Standard soap (3532: 2016), namely, the foam height test and foam stability, pH test and moisture content test. The data analysis technique used is the one-way anova test with a significance level of 0.05. Based on the results of statistical analysis of prerequisite tests and hypothesis testing, it shows that in the high foam test parameter the P-value is $0.000 < 0.05$ and in the foam stability test parameter the P-value is $0.002 < 0.05$, so H_a is accepted H_o is rejected, so it can be concluded that there is an effect of dragon fruit peel extract on the physical characteristics of soap. The LSD test results show that F2 and F3 with medium dragon fruit peel extract concentrations (2% and 2.5%) are able to maintain foam stability and F4 with high concentration (3%) is able to increase the amount of foam. However, based on the INS (3532: 2016) all soap formulations from each quality requirement parameter have met the standard.

Keywords: Dragon Fruit Peel, Physical and Chemical characteristics, Soap, Cold Process Method.