Influence of Calamansi and Virgin Coconut Oil as Active Reagents on the Acceptability of Liquid Hand Wash

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ABSTRACT

The newly formulated liquid hand wash with calamansi extract and 5 g virgin coconut oil enhance its odor and foam-forming ability, respectively. The product had the liquid hand wash qualities, light yellow in color, moderately pleasant odor, slightly thick in viscosity and very foamy based on the sensory evaluation using descriptive testing as evaluated by twenty trained panelists. The general acceptability rating of the most preferred liquid hand wash with calamansi extract was “Like Moderately”, while “Like Slightly”, for liquid hand wash with virgin coconut oil as active reagents, based on the 9-point hedonic scale as perceived by 50 consumer panelists. The preference rating of the most preferred sample significantly differs as to its odor and foam-forming ability using Analysis of Variance (ANOVA) and Duncan Multiple Range Test (DMRT) at 5% level of significance; however, its quality is comparable with the liquid hand wash of the Department of Science and Technology, Industrial Technology and Development Institute (DOST-ITDI). The product had a pH value of 6.50 and a bacterial count of $2.00 \times 10^3$ cfu/g sample, per result of the laboratory analysis. The preparation of liquid hand wash with calamansi extract and virgin coconut oil lowers the cost of hand washing activities of schools, colleges and universities to prevent the influenza A(H1N1), the country’s lifestyle disease, which respond to the Department of Education Management Memorandum to all schools, colleges and universities in Cebu Province to motivate the students to observe hand washing before and after eating and most especially before and after using the comfort rooms.

INTRODUCTION

The Department of Health (DOH) has recorded two new deaths related to influenza A (H1N1) that made the country’s cases climbed to 2,668, but 95% of these cases have fully recovered and roughly 134 cases are on the road to recovery (Oliveiros, 2009). The country’s lifestyle disease alarmed the Department of Education Management, thus, issued a memorandum to all schools, colleges and universities in Cebu Province to motivate the students to observe hand washing before and after eating and most especially before and after using the comfort rooms. The campaign requires high cost in detergent expenses, thus, there is a need to acquire knowledge in liquid hand wash preparation with calamansi, Cirfortunella microcarpa, as active reagents which act as emulsifiers and deodorizers and as a body deodorant (http://www.geocities.com/Athens/Academy/4059/caimito.html) and virgin coconut oil that helps to soften and smooth the skin and serves as carrier oil for essential oils.

Hand washing is a simple habit that requires minimal training and no special equipment is needed. It only needs...
to have soap and warm water or liquid hand wash. Incorporation of virgin coconut oil and calamansi into the liquid hand wash formulated by the DOST-Industrial Technology Development Institute gives more healthier and moisturizing effects and can lower the cost of production since virgin coconut oil and calamansi are abundant in our country.

The study aimed to determine the appropriate amount of calamansi extract and virgin coconut oil as active reagents for liquid hand wash and its effects on its color, odor, viscosity and foam forming ability.

**MATERIALS AND METHODS**

This study utilized experimental method of research with varying concentrations of calamansi and virgin coconut oil added to the Department of Science and Technology, Industrial Technology and Development Institute formula of hand wash preparation. The gathered data were evaluated for two trials using Analysis of Variance and Duncan Multiple Range Test at 5% level of significance to determine the mean significant differences of the samples.

**RESULTS AND DISCUSSION**

Figure 1 shows the descriptive results of liquid hand wash with the varying concentrations of calamansi and virgin coconut oil. The liquid hand wash with varying calamansi concentrations and virgin coconut oil had “Light Yellow”, to “Very Light Yellow” color, “Moderately Pleasant” odor, Slightly Thick to “Moderately Thin” viscosity, and “Very Foamy” to “Moderately Foamy” foam forming ability. This implies that an increasing quantity of calamansi extract and virgin coconut oil concentration in liquid hand wash enhanced its quality.

**Preference test results**

This test requires the fifty (50) panelists to assess the acceptability rating based on appearance, odor, viscosity and foam forming ability of liquid hand wash with varying concentrations of calamansi and virgin coconut oil (Figure 2).

The preference results of color, odor, foam forming ability and viscosity for liquid hand wash at varying calamansi extracts and virgin coconut oil concentrations were “Like Moderately” to all properties.

In summary, based on the preference test perceived by the 50 panelists, the most preferred liquid hand wash contains 10% calamansi extract and 5% virgin coconut oil. This formulated liquid hand wash significantly differs from the rest of the experimental samples as to its odor and foam forming ability, based on the analysis of variance at 5% level of significance. The product had a pH value of 6.50 and a bacterial count of $2.00 \times 10^3$ cfu/g sample, per result of the laboratory analysis.

**Conclusion**

After a series of analyses of the acceptability of liquid hand wash with varying concentrations of calamansi and virgin coconut oil as revealed from the data gathered from the
perceptions of the panelists, it is declared that only 10 g of calamansi with 5 g VCO is appropriate to be added to ITDI’s formula as active reagents.

REFERENCES


Figure 2. The preference results of liquid hand wash with varying concentrations of calamansi extract and virgin coconut oil.

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