

Moringa Seeds Foot Deodorizer

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Abstract

This research examines the possibility of making an antibacterial foot deodorizer from Moringa seeds in order to reduce the pesky foot odor produced by sweating. These seeds possess antibacterial, antifungal, and antiviral properties, which were utilized to produce three forms of deodorizer: gel, liquid, and powder. The present study assesses these forms of deodorizers based on their smell, appearance, soothing property, and texture using a sample of students and workers/teachers. Experimental design : Mixture of Moringa seed extract and essential oils, ethyl alcohol, glycerin, baking soda, agar-agar, water. Acceptability on formulation showed very high acceptability level across the different formulations. Teachers / workers accepted it more than students in most attributes. Statistically significant differences between the two groups reflect variations in standards and sensory sensitivity of consumers and workers.

In conclusion, the Moringa-based foot deodorizers were found to be acceptable and highly accepted by users on their scent and texture and soothing effects, which hints at its ability to become an effective, natural alternative commercial product. However, improvement in preparation methods and safety testing should be made to make the product commercially viable and safe for the consumer.

Keywords: Moringa Seeds; deodorizer; antibacterial

1. Introduction

According to Food and Drug Article Section 201 (i), In the United States the Food and Drug Administration classifies and regulates most deodorant as cosmetics, but classifies anti-perspirants as over-the-counter drugs. Deodorants can be formulated with other, more persistent antimicrobials such as triclosan that slow bacterial growth.

Deodorants may contain perfume fragrance or natural essential oils intended to mask the odor of perspiration (www.merriam-webster.com). Deodorizer substance used to eliminate offensive odors. Absorbent deodorizers such as activated charcoal and silica gel remove odorous molecules by attracting them to the adsorbent surface According to Encyclopaedia. A deodorant is applied to the body to prevent body odor caused by the bacterial breakdown of perspiration in armpits, feet, and other areas of the body. Even before cosmetic items became part of the ancient civilization, humans always sought the way to mask or remove body odor that accompanies perspiration or to mask fragrances from other cosmetic substances that they have applied to their bodies. Because scientist did not manage to successfully determine what is the cause of the offensive body odor, for the majority of modern history people fought against offensive smells with the use of perfumes (www.historyofcosmetics.net).

Moringa is a very popular plant which is widely used for consumption. The seeds and leaves are most commonly used. It is also used in traditional medicine due to its medicinal properties. The plant has got

lots of benefits on health, skin and hair. Moringa seed extract has skin purifying properties and therapeutic skin care benefits. Moringa seed extract is capable of protecting the skin from heavy metal pollution, moringa seed is a very powerful cleaning agent. Lotions and deep cleansing creams use this as common ingredient. Aromatherapy oils and perfumes are made from moringa seeds (Stylishwalks.com).

Moringa seeds are obtained from the pods of the moringa tree (Moringa Oleifera). Fresh and raw moringa seeds are quite tender, but as soon as they get dried they become hard and start resembling small beans which can be steamed, boiled or roasted for various purposes. Moringa seeds contain lots of vitamins A, C, B complex and other free radical busters that save the body from severe oxidative damages. Moringa seeds are widely used to make skin care products. The oil extracted from them can help make face free from acne, pimples, blackheads, black spots etc.(www.stylishwalks.com).

Moringa contain natural antibacterial, antifungal and antiviral compounds that protect the skin from various forms of infections. Moringa oil used a common ingredient in food manufacturing and perfumes because it prevents spoilage by killing bacteria, plus it has pleasant smell and reduces odors (draxe.com.moringa).

This study focused on reducing odors of the feet due to perspiration using moringa seeds.

1.1 Statement of the Problem

This study aimed to produce foot deodorizer from Moringa seeds.

Specifically, this study aimed to answer the following questions;

1. What are the methods used in preparing Moringa Seeds foot deodorizer in the following forms:

- 1.1 Gel
- 1.2 Liquid
- 1.3 Powder?

2. What is the mean level of acceptability of Moringa Seeds foot deodorizer's sensory qualities in terms of:

- 2.1 Scent;
- 2.2 Appearance;
- 2.3 Soothing Effect;
- 2.4 Texture?

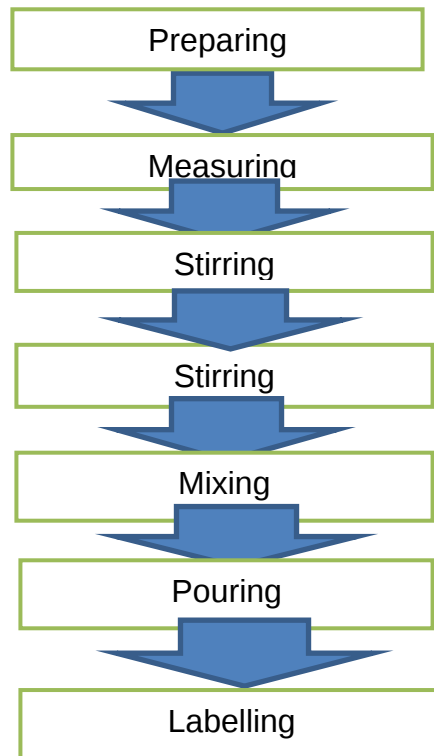
3. Is there a significant difference between the students' and teachers'/workers' rating on the level acceptability of Moringa Seeds foot deodorizer?

2. Methodology

This study utilized the experimental design wherein the Moringa Seeds were tried as the major components of foot deodorizer with an additional proportion of essential oil, ethyl alcohol, glycerine, baking soda, agar-agar and water which gives varied scent to the foot deodorizer.

3. Results and Discussion

This chapter present the analysis and interpretation of data. The level of *acceptability* of the three types of foot deodorizer in terms of scent, appearance, soothing effect and texture were presented first followed by the result of the test of difference between the level of *acceptability* of the students and teacher/worker respondents.

Method in Preparing Moringa Seeds Foot Deodorizer, Gel, Liquid, Powder Forms.**Table 1. Level of Acceptability of the Gel Foot Deodorizer's Scent**

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the scent of the product.	4.72	1.429	A	7.00	0.000	HA
2. The strength of the scent of the product is fine	5.64	1.221	A	7.00	0.000	HA
3. The scent stayed for a long period of time after the application on the skin	5.56	1.261	A	5.96	0.935	HA
4. The scent is appropriate for all ages.	5.76	1.363	A	6.24	0.879	HA
5. The scent stayed pleasant after several hours.	6.08	1.077	HA	6.24	0.436	HA
Overall mean	5.55		A	6.49		HA

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

The level of *acceptability* of the *gel foot deodorizer* in terms of *scent* is presented in Table 1. I love the scent of the product with the mean of 4.72 and SD of 1.429 for the students and 7.00 and 0.000 for the teachers/workers and the strength of the scent of the product is fine with the mean of 5.64 and SD of 1.221 for the students and 7.00 and 0.000 for the teachers/workers. The scent stayed for a long period of time after the application on the skin with the mean of 5.56 and SD of 1.261 for the students and 5.96 and 0.935 for the teachers/workers and the scent is appropriate for all ages with the mean of 5.76 and SD of 1.363 for the students and 6.24 and 0.879 for the teachers/workers. The scent stayed pleasant after several hours with the mean of 6.08 and SD of 1.077 for the students and 6.24 and 0.436 for the teachers/workers. The table shows the overall $x=5.55$ “*acceptable*” for the students and $x=6.49$ “*highly acceptable*” for the teachers/workers.

Table 2. Level of Acceptability of the Liquid Foot Deodorizer’s Scent

Indicator	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the scent of the product.	5.64	0.860	A	6.44	0.821	HA
2. The strength of the scent of the product is fine.	5.48	1.122	A	6.84	0.374	HA
3. The scent stayed for a long period of time after the application on the skin	5.80	0.957	A	6.32	0.627	HA
4. The scent is appropriate for all ages.	6.44	0.917	HA	6.48	0.714	HA
5. The scent stayed pleasant after several hours.	5.92	1.256	HA	6.76	0.436	HA
Overall mean	5.86	HA		6.57	HA	

Legend:

5.81 – 7.00 *Highly Acceptable (HA)*

4.61 – 5.80 *Acceptable (A)*

3.41 – 4.60 *Moderately Acceptable (MA)*

2.21 – 3.40 *Less Acceptable (LA)*

1.00 – 2.20 *Not Acceptable (NA)*

The respondents level of *acceptability* of the *scent of the liquid foot deodorizes* is depicted in Table 2. Table 12 shows that I love the scent of the product with the ($x=5.64$, $sd=0.860$) for the students and ($x=6.44$, $sd=0.821$) as for the teachers/workers and strength of the scent of the product is fine with the ($x=5.48$, $sd=1.122$) for the students and ($x=6.84$, $sd=0.374$) for the teachers/workers. The scent stayed for a long period of time after the application on the skin with the ($x=5.80$, $sd=0.957$) for the students and ($x=6.32$, $sd=0.627$) for the teachers/workers and that the scent is appropriate for all ages with the highest mean of 6.44 and $SD=0.917$ for the students and $x=6.48$, $SD=0.714$ for the teachers/workers. The students *highly acceptable* the scent of the liquid foot deodorizer stayed pleasant after several hours with the mean of 5.92 and SD of 1.256 and on the other hand 6.76 and 0.436, for the teachers/workers. With an overall mean of 5.86 it is “*highly acceptable*” for the students and 6.57 “*highly acceptable*” for the teachers/workers. In general, the liquid foot deodorizer is “*highly acceptable*” in terms of scent.

Table 3. Level of Acceptability of the Powder Foot Deodorizer's Scent.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the scent of the product.	6.52	0.872	HA	6.04	0.790	HA
2. The strength of the scent of the product is fine.	5.44	1.446	A	6.32	0.557	HA
3. The scent stayed for a long period of time after the application on the skin	5.24	1.300	A	6.56	0.821	HA
4. The scent is appropriate for all ages.	6.00	1.118	HA	6.40	0.816	HA
5. The scent stayed pleasant after several hours.	5.28	0.737	A	6.80	0.408	HA
Overall mean	5.70	A		6.42	HA	

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

Table 3 presents the level of *acceptability* of the *powder foot deodorizer* in terms of *scent*. It can be gleaned from the table that the students *highly acceptable* the I love the scent of the product with ($x=6.52$, $sd=0.872$) and ($x=6.04$, $sd=0.790$) for the teachers/workers. The strength of the scent of the product is fine with ($x=5.44$, $sd=1.446$) as for the students and ($x=6.32$, $sd=0.557$) for the teachers/workers. The scent stayed for a long period of time after the application on the skin with the ($x=5.24$, $sd=1.300$) for the students and ($x=6.56$, $sd=0.821$) for the teachers/workers. The scent is appropriate for all ages with ($x=6.00$, $sd=1.118$) for the students and ($x=6.40$, $sd=0.816$) for the teacher/worker. The stayed pleasant after several hours with ($x=5.28$, $sd=0.737$) for the students and ($x=6.80$, $sd=0.408$) for the teachers/worker, overall mean rating for the students is 5.70 which is verbally interpreted as “*acceptable*” and the mean rating of teachers/workers is 6.42 which is interpreted as “*highly acceptable*”. Meanwhile, the teacher/worker rated the powder foot deodorizer *highly acceptable* in all the indicators, the teacher/worker rated all the other indicators higher than the students.

Table 4. Level of Acceptability of the Gel Foot Deodorizer's Appearance.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the appearance of the product.	5.04	1.369	A	6.80	0.408	HA
2. The product's appearance is very natural.	5.40	1.155	A	7.00	0.000	HA
3. The product's appearance is comparable to commercially available products.	5.36	1.254	A	6.16	0.473	HA
4. The appearance of the product is distinguishable.	5.52	1.327	A	6.32	0.627	HA

5. The products appearance stayed the same after several hours.	6.08	1.077	HA	6.44	0.507	HA
Overall mean	5.48		A	6.54		HA

Legend:

5.81 – 7.00 Highly Acceptable (HA)

4.61 – 5.80 Acceptable (A)

3.41 – 4.60 Moderately Acceptable (MA)

2.21 – 3.40 Less Acceptable (LA)

1.00 – 2.20 Not Acceptable (NA)

Table 4 shows that level of *acceptability* of the *gel foot deodorizer's* appearance. I love the appearance of the product with the ($x=5.04$, $sd=1.369$) for the students and ($x=6.80$, $sd=0.408$) for the teacher/worker, the product appearance is very natural with the ($x=5.40$, $sd=1.155$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker. The product appearance is comparable to commercially available product with ($x=5.36$, $sd=1.254$) for the students and ($x=6.16$, $sd=0.473$) for the teacher/worker, the appearance of the product is distinguishable with ($x=5.52$, $sd=1.327$) for the students and ($x=6.32$, $sd=0.627$) for the teacher/worker. The product appearance stayed the same after several hours with ($x=6.08$, $sd=1.077$) for the students and ($x=6.44$, $sd=0.507$) for the teacher/worker. It can be gleaned from the table that relatively, the students rated all the indicators lower than the teachers and workers. The students agree that they love the appearance of the product as transpired by the lowest mean perception of ($x=5.04$, $sd=1.369$). Moreover, the students strongly agree that the product's appearance stayed the same after several hours as reflected by the highest mean of 6.08 ($SD=1.077$). Overall, the gel foot deodorizer in terms of appearance was *acceptable* ($x=5.48$) to the students and *highly acceptable* ($x=6.54$) to the teacher/worker.

Similarly the mean level of *acceptability* of *Dayap Cologne* as perceived by Hotel and Restaurant Management professor and students of Laguna State Polytechnic University Sta. Cruz Laguna based on sensory quality such as *appearance*.

The level of *acceptability* of the *foot deodorizer* in terms of *appearance* is depicted in Table 5. The table shows that almost all the indicators received a mean rating of at least 5.81, I love the appearance of the product with ($x=6.08$, $sd=0.759$) for the students and ($x=6.60$, $sd=0.500$) for the teacher/worker. The product appearance is very natural with ($x=5.60$, $sd=0.913$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker, the product appearance is comparable to commercially available product with ($x=5.92$, $sd=0.702$) for the students and ($x=6.92$, $sd=0.277$) for the teacher/worker. The appearance of the product is distinguishable with ($x=6.08$, $sd=1.288$) for the students and ($x=6.32$, $sd=0.690$) for the teacher/worker, the product appearance stayed the same after several hour with ($x=5.96$, $sd=1.369$) for the students and ($x=6.80$, $sd=0.408$) for the teacher/worker. The overall mean rated by the student was 5.93 "*highly acceptable*", The teacher/worker respondents "*highly acceptable*" that the product's appearance is very natural as transpired by the highest mean perception of 7.00. Indicator 4 (The appearance of the product is distinguishable) obtained the lowest mean perception of 6.32 ($SD=0.690$) but still verbally interpreted as *highly acceptable* by the teacher/worker respondents. In general, the appearance of the liquid foot deodorizer was *highly acceptable* ($x=6.73$) according to the teacher/worker respondents.

Table 5. Level of Acceptability of the Liquid Foot Deodorizer's Appearance.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the appearance of the product.	6.08	0.759	HA	6.60	0.500	HA

2. The product's appearance is very natural.	5.60	0.913	A	7.00	0.000	HA
3. The product's appearance is comparable to commercially available products.	5.92	0.702	HA	6.92	0.277	HA
4. The appearance of the product is distinguishable.	6.08	1.288	HA	6.32	0.690	HA
5. The products appearance stayed the same after several hours.	5.96	1.369	HA	6.80	0.408	HA
Overall mean	5.93		HA	6.73		HA

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

Table 6 shows that level of *acceptability of the powder foot deodorizer in terms of appearance*. It can be gleaned from the table that the I love the scent of the product with ($x=6.08$, $sd=1.352$) for the students and ($x=6.42$, $sd=0.779$) for the teacher/worker. Students rates as *highly acceptable* the products appearance is very natural ($x=6.32$, $sd=0.988$) and ($x=6.44$, $sd=0.507$) for the teacher/worker. The product appearance is comparable to commercially product available with ($x=5.72$, $sd=1.370$) for the students and ($x=6.60$, $sd=0.764$) for the teacher/worker, the product appearance is distinguishable with ($x=6.28$, $sd=0.891$) for the students and ($x=6.72$, $sd=0.458$) for the teacher/worker. The students agree that the product appearance stayed the same after several hours ($x=6.28$, $sd=0.891$) and ($x=6.80$, $sd=0.408$) for the teacher/worker. As per the teacher/worker respondents, they rated as *highly acceptable* all the indicators particularly on indicator 5 (The products appearance stayed the same after several hours) which garnered the highest mean perception of 6.80 ($SD=0.408$). Overall mean rated for the students was 5.93 and 6.56 for the teacher/worker, both the students and the teacher/worker respondents rated the powder foot deodorizer in term of appearance “*highly acceptable*”

Table 6. Level of Acceptability of the Powder Foot Deodorizer's Appearance.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the appearance of the product.	6.08	1.352	HA	6.24	0.779	HA
2. The product's appearance is very natural.	6.32	0.988	HA	6.44	0.507	HA
3. The product's appearance is comparable to commercially available products.	5.72	1.370	A	6.60	0.764	HA
4. The appearance of the product is distinguishable.	6.28	0.891	HA	6.72	0.458	HA
5. The products appearance stayed the same after several hours.	5.24	0.970	A	6.80	0.408	HA
Overall mean	5.93		HA	6.56		HA

Legend:

5.81 – 7.00 *Highly Acceptable (HA)*
 4.61 – 5.80 *Acceptable (A)*
 3.41 – 4.60 *Moderately Acceptable (MA)*
 2.21 – 3.40 *Less Acceptable (LA)*
 1.00 – 2.20 *Not Acceptable (NA)*

Table 7 summarizes the perception of the respondents on the *acceptability* of the *soothing effect of gel foot deodorizer*. It can be gleaned from the table that the product has a soothing effect with ($x=5.28$, $sd=0.792$) for the students and ($x=6.80$, $sd=0.408$) for the teacher/worker, the soothing effect of the product can be felt on the moment of application with ($x=5.24$, $sd=1.091$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker. *Highly acceptable* the product's soothing effect is comparable to the commercially available ($x=5.96$, $sd=1.060$) for the students and ($x=6.40$, $sd=0.645$) for the teacher/worker, soothing effect of the product is tolerable ($x=6.32$, $sd=1.030$) for the students and ($x=6.16$, $sd=0.898$) for the teacher/worker. Soothing effect of the product last for a while ($x=6.52$, $sd=0.770$) for the students and ($x=6.56$, $sd=0.507$) for the teacher/worker. The overall weighted mean for the students was 5.86 and 6.58 for the teacher/worker, both the students and the teacher/worker respondents rated the gel foot deodorizer in terms of its soothing effect as "*highly acceptable*".

Table 7. Level of Acceptability of the Gel Foot Deodorizer's Soothing Effect.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. The product has a soothing effect.	5.28	0.792	A	6.80	0.408	HA
2. The soothing effect of the product can be felt on the moment of application.	5.24	1.091	A	7.00	0.000	HA
3. The product's soothing effect is comparable to commercially available products.	5.96	1.060	HA	6.40	0.645	HA
4. The soothing effect of the product is tolerable.	6.32	1.030	HA	6.16	0.898	HA
5. The soothing effect of the product last for a while.	6.52	0.770	HA	6.56	0.507	HA
Overall mean	5.86		HA	6.58		HA

Legend:

5.81 – 7.00 *Highly Acceptable (HA)*
 4.61 – 5.80 *Acceptable (A)*
 3.41 – 4.60 *Moderately Acceptable (MA)*
 2.21 – 3.40 *Less Acceptable (LA)*
 1.00 – 2.20 *Not Acceptable (NA)*

Table 8. Level of Acceptability of Liquid Foot Deodorizer's Soothing

Effect.

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. The product has a soothing effect.	6.12	0.881	HA	6.44	0.651	HA
2. The soothing effect of the product can be felt on the moment of application.	5.52	1.046	A	6.80	0.816	HA
3. The product's soothing effect is comparable to commercially available products.	5.84	0.746	HA	6.40	0.816	HA
4. The soothing effect of the product is tolerable.	6.12	1.130	HA	6.80	0.408	HA
5. The soothing effect of the product last for a while.	6.00	1.291	HA	6.72	0.458	HA
Overall mean	5.92	HA		6.63	HA	

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

The level of acceptability of the *liquid foot deodorizer* in terms of its soothing effect is presented in Table 18. The students *highly acceptable* the product has a *soothing effect* ($x=6.12$, $sd=0.881$) and ($x=6.44$, $sd=0.651$) for the teacher/worker, the soothing effect of the product can be felt on the moment of application ($x=5.52$, $sd=1.046$) for the students and ($x=6.80$, $sd=0.816$) for the teacher/worker. Furthermore, both students, teacher/worker rated as *highly acceptable* the *soothing effect* of the product is comparable to commercially available ($x=5.84$, $sd=0.746$) and ($x=6.40$, $sd=0.816$), soothing effect of the product is tolerable ($x=6.12$, $sd=0.1130$) for the students and ($x=6.80$, $sd=0.408$) for the teacher/worker. And lasts for a while ($x=6.00$, $sd=0.1291$) for the students and ($x=6.72$, $sd=0.458$) for the teacher/worker. On other hand, the teacher/worker respondents rated as *highly acceptable* all the indicators which led to their overall mean rating of 6.63 which is verbally interpreted as “*highly acceptable*”. Likewise, the soothing effect of the liquid foot deodorizer is “*highly acceptable*” ($x=5.92$) according to the students.

Table 9. Level of Acceptability of Powder Foot Deodorizer's Soothing Effect.

Indicator	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. The product has a soothing effect.	6.24	1.200	HA	6.76	0.523	HA
2. The soothing effect of the product can be felt on the moment of application.	6.00	1.472	HA	6.64	0.490	HA
3. The product's soothing effect is comparable to commercially available products.	5.68	1.435	A	6.56	0.821	HA
4. The soothing effect of the product is tolerable.	5.92	1.382	HA	6.60	0.500	HA
5. The soothing effect of the product last	5.56	1.083	A	7.00	0.000	HA

for a while.						
Overall mean	5.88	HA	6.71	HA		

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

Table 19 presents the level of *acceptability* of the *soothing effect of the powder foot deodorizer*. The table shows that, as per the students, the product is highly acceptable ($x=6.24$, $sd=1.200$) and ($x=6.76$, $sd=0.532$) for the teacher/worker in terms of its soothing effect. In particular, the students rated as highly acceptable the soothing effect of the product can be felt on the moment of application ($x=6.00$, $sd=1.472$) and ($x=6.64$, $sd=0.490$) for the teacher/worker. The product soothe effect is comparable to the commercially available ($x=5.68$, $sd=1.435$) for the students and ($x=6.56$, $sd=0.821$) for the teacher/worker, and soothing effect of the product is tolerable ($x=5.92$, $sd=1.382$) for the students and ($x=6.60$, $sd=0.500$) for the teacher/worker. Soothing effect last for a while ($x=5.56$, $sd=1.083$) for the students. Meanwhile, the teacher/worker respondents rated the indicator as highly acceptable ($x=7.00$, $sd=0.000$). Overall weighted mean for the students was 5.88 and 6.71 for the teacher/worker, the powder foot deodorizer is *highly acceptable* to both the students and the teacher/worker respondents.

The level of acceptability of the *gel foot deodorizer* in terms of its *texture* is presented in Table 20. I love the texture of the product ($x=4.84$, $sd=1.248$) for the students and ($x=6.80$, $sd=0.408$) for the teacher/worker, texture adds quality to product ($x=5.16$, $sd=1.068$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker. The product texture is comparable to commercially available product ($x=5.76$, $sd=1.234$) for the students and ($x=6.08$, $sd=0.759$) for the teacher/worker, texture of the product distinguishes from other product ($x=5.76$, $sd=1.234$) for the students and ($x=6.48$, $sd=0.714$) for the teacher/worker. Texture is perfect on the moment of application ($x=6.12$, $sd=1.092$) for the students and ($x=6.56$, $sd=0.507$) for the teacher/worker. The table shows that only indicator 5 (The texture is perfect on the moment of application) obtained a verbal interpretation of *highly acceptable* as per the student respondents. The students obtained “*acceptable*” they love the texture of the product, the texture adds quality, the texture is comparable to commercially available, and distinguishes it from other product. Overall weighted mean for the students was 5.53 verbally interpreted as “*acceptable*”. Meanwhile, all the indicators obtained a mean rating of at least 5.81 and are all verbally interpreted as *highly acceptable* by the teacher and worker respondents with overall weighted mean of 6.58 “*highly acceptable*”. The gel foot deodorizer is *acceptable* to the students and *highly acceptable* to the teacher respondents in terms of its texture.

Table 10. Level of Acceptability of Gel Foot Deodorizer’s Texture

Indicator	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the texture of the product.	4.84	1.248	A	6.80	0.408	HA
2. The texture adds quality to the product.	5.16	1.068	A	7.00	0.000	HA
3. The product’s texture is comparable to commercially available products.	5.76	1.234	A	6.08	0.759	HA
4. The texture of this product distinguishes it from other products.	5.76	1.234	A	6.48	0.714	HA
5. The texture is perfect on the moment	6.12	1.092	HA	6.56	0.507	HA

of application.						
Overall mean	5.53	A	6.58	HA		

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)***Table 10. Level of Acceptability of Liquid Foot Deodorizer's Texture**

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.
1. I love the texture of the product.	6.12	0.726	HA	6.88	0.332	HA
2. The texture adds quality to the product.	5.88	1.054	HA	7.00	0.000	HA
3. The product's texture is comparable to commercially available products.	6.16	0.624	HA	6.92	0.277	HA
4. The texture of this product distinguishes it from other products.	6.36	1.114	HA	6.56	0.507	HA
5. The texture is perfect on the moment of application.	6.08	1.222	HA	6.76	0.436	HA
Overall mean	6.12	HA		6.82	HA	

Legend:5.81 – 7.00 *Highly Acceptable (HA)*4.61 – 5.80 *Acceptable (A)*3.41 – 4.60 *Moderately Acceptable (MA)*2.21 – 3.40 *Less Acceptable (LA)*1.00 – 2.20 *Not Acceptable (NA)*

The level of acceptability of the *liquid foot deodorizer* in terms of *texture* is presented in Table 10. It can be gleaned from the table that both the students and the teacher/worker respondents rated as “*highly acceptable*” that the I love the texture of the product ($x=6.12$, $sd=0.726$) for the students and ($x=6.88$, $sd=0.332$) for the teacher/worker. The texture adds quality to the product ($x=5.88$, $sd=1.054$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker, product texture is comparable to commercially available product ($x=6.16$, $sd=0.624$) for the students and ($x=6.92$, $sd=0.277$) for the teacher/worker. Texture of the product distinguishes from other product ($x=6.36$, $sd=1.114$) for the students and ($x=6.56$, $sd=0.507$) for the teacher/worker, texture is perfect on moment of application ($x=6.08$, $sd=1.222$) for the students and ($x=6.76$, $sd=0.436$) for the teacher/worker. Moreover, the overall weighted mean of the students was 6.12 and 6.82 for the teacher/worker both mean verbally interpreted as “*highly acceptable*”. Because of this, the *liquid foot deodorizer* was “*highly acceptable*” in terms of its texture.

Table 11. Level of Acceptability of Powder Foot Deodorizer's Texture

Indicators	Student			Teacher / Worker		
	W. M.	S. D.	V. I.	W. M.	S. D.	V. I.

1. I love the texture of the product.	6.16	1.281	HA	6.20	0.764	HA
2. The texture adds quality to the product.	6.36	1.036	HA	6.28	0.678	HA
3. The product's texture is comparable to commercially available products.	5.80	1.323	A	6.60	0.816	HA
4. The texture of this product distinguishes it from other products.	6.12	0.927	HA	6.68	0.476	HA
5. The texture is perfect on the moment of application.	5.12	0.600	A	7.00	0.000	HA
Overall mean	5.91		HA	6.55		HA

Legend:

5.81 – 7.00 Highly Acceptable (HA)

4.61 – 5.80 Acceptable (A)

3.41 – 4.60 Moderately Acceptable (MA)

2.21 – 3.40 Less Acceptable (LA)

1.00 – 2.20 Not Acceptable (NA)

Table 11 shows the level of *acceptability of the texture of powder foot deodorizer*. The table shows that all the indicators obtained highly acceptable both students and teacher/worker. I love the texture of the product ($x=6.16$, $sd=1.281$) for the students and ($x=6.20$, $sd=0.764$) for the teacher/worker, texture adds quality to the product ($x=6.36$, $sd=1.036$) for the students and ($x=6.28$, $sd=0.678$) for the teacher/worker. Product texture is comparable to commercially available product ($x=5.80$, $sd=1.323$) for the students and ($x=6.60$, $sd=0.816$) for the teacher/worker, texture of the product distinguishes from other product ($x=6.12$, $sd=0.927$) for the students and ($x=6.68$, $sd=0.476$) for the teacher/worker. Texture is perfect on the moment of application ($x=5.12$, $sd=0.600$) for the students and ($x=7.00$, $sd=0.000$) for the teacher/worker. The overall weighted mean for the students was 5.91 and 6.55 for the teacher/worker, both the students and teacher/worker respondents said that the powder foot deodorizer was “*highly acceptable*” in terms of its texture.

Difference on the Level of Acceptability of the Foot Deodorizer**Table 12. Difference on the Level of Acceptability of the Foot Deodorizer as rated by Students and Teachers/Workers**

Acceptability	Liquid foot deodorizer			Powder foot deodorizer			Gel foot deodorizer		
	t-value	p-value	Analysis	t-value	p-value	Analysis	t-value	p-value	Analysis
Scent	-6.760	.000	S	-5.792	.000	S	-7.716	.000	S
Appearance	-9.038	.000	S	-4.611	.000	S	-9.056	.000	S
Soothing effect	-5.613	.000	S	-5.461	.000	S	-6.125	.000	S

Texture	-5.913	.000	S	-5.349	.000	S	-7.848	.000	S
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Table 12 summarizes the result of the test of difference on the level of acceptability on the various types of foot deodorizer as rated by the students and teacher/worker respondents. It can be inferred from the table that as for the liquid foot deodorizer, the level of acceptability by the students and teacher/worker respondents are all significantly different in terms of scent, appearance, soothing effect and texture. For the powder foot deodorizer, all the t-value has a p-value of 0.00 which signifies that the level of acceptability of the teacher/worker and the students are significantly different from each other in terms of scent, appearance, soothing effect and texture. There was a significant difference between the level of acceptability of the students and teacher/worker respondents on the scent, appearance, soothing effect and texture of the gel foot deodorizer. The results may imply that difference in the level of acceptability may be caused by several factors such as respondents' sensitivity and standards on the product. Students might be more idealistic with regards to the characteristics of cosmetics such as foot deodorizer. Though there was a significant difference between the level of acceptability of the students and teacher/worker respondents, it should be noted that the level acceptability of both groups is either *acceptable* or *highly acceptable*. This means that, the difference on the level of acceptability is just on the degree of the product being acceptable by both groups.

4. Conclusion and Recommendations

As for the students and the teacher/workers' respondents, the various types of foot deodorizer was either acceptable and highly acceptable in terms of scent, appearance, soothing effect and texture. After subjecting the data to independent samples t-test, at 5% level of significance, there was a significant difference between the mean acceptability rating of the students and the teacher/workers' respond.

Thus, the hypothesis which states that, there is no significant difference on the level of acceptability of Moringa Seeds gel foot deodorizer, liquid foot deodorizer, powder foot deodorizer, sensory qualities in terms of scent, appearance, soothing effect and texture was not supported.

After careful analysis of the data obtained, the following recommendations are highly suggested.

1. Look for other methods of preparing foot deodorizer. The method might be done on a commercially available establishment that is well known in manufacturing cosmetics in order to improve the quality of the product.
2. Test other plant or seed extracts which can be used as foot deodorizer.
3. Increase the number of respondents and use other groups of people, for instance construction workers and athletes.
4. Subject the foot deodorizer to chemical analysis for users' safety and product's quality.

Reference:

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