

DEVELOPMENT ON NABEEZ TABLET ENRICHED WITH ANTIOKSIDAN CONTENT

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ABSTRACT

The development of a sunnah drink known as Nabeez is a drink produced from soaked dates and raisins. This drink had high nutritional value content in addition to having an antioxidant content that can slow the growth of cancer. This drink began to gain a place among those who make sunnah food as a daily practice in addition to the fact that it is usually taken in the month of Ramadan as the main energy supply. Accordingly, the development of this Nabeez tablet product was aimed to optimize the antioxidant content of Nabeez and make it convenient for consumers. The study was conducted by obtaining the best formulation through three formulations (902, 835 and 276). The raw material antioxidant (raisins and dates) was firstly treated with Ultraviolet-C (UV-C) light for 180 seconds through a UV lamp at a radiation rate of 254nm with a distance of 22cm. The formulations produced were then evaluated by 30 trained panelists. The results showed that formulation 902 was chosen as the best formulation where through ANOVA-Test, P-values greater than 0.05 indicates significant difference between samples. Lastly, the Total Phenolic Content (TPC) and 2,2-Diphenyl-1-picrylhydrazyl (DPPH) was conducted for the finalized formulation Nabeez juice (23.8%), maltodextrin (23.8%), Vitamin C powder (23.75%), Sodium Carbonate (23.74%), grape flavor (3.54%), aspartame (1.11%) and caramel color (0.26%). The development of the best formulation also showed the TPC was 1.7454 mg GAE/mg and DPPH was 79.71%. This Nabeez drink will not only be of interest to drink enthusiasts sunnah and will be an attraction for those who like detox drinks.

Keywords: Nabeez drinks; ajwa dates; golden raisins; antioxidant

INTRODUCTION

Nabeez drink is a sunnah drink which is a good detox drink for health (Muzaifa, Lubis, & Arifullah, 2019). Sunnah food is the food that the Prophet SAW used to eat, including Nabeez drinks. Nabeez has many benefits especially related to health. Besides being an alkaline tonic drink, it is also able to help remove acidity from the stomach and other metabolic waste from the body. Accordingly, this nabeez drink needs to be highlighted because it not only provides high nutritional value, but it is also able to provide long-lasting energy, especially in the month of Ramadhan.

There are also a Hadith mentioning this drink.

“Ibn ‘Abbas reported that Nabidh was prepared for Allah’s Messenger (may peace be upon him) in the beginning of the night and he would drink it in the morning and the following night and the following day and the night after that up to the afternoon. If anything was left out of that he gave it to his servant, or gave orders for it to be poured out.” (Sahih Muslim Book 23, Hadith Number 4971)

“A’isha reported: We prepared Nabidh for Allah’s Messenger (may peace be upon him) in a waterskin, the upper part of which was tied and it (the waterskin) had a hole (in its lower part). We prepared the Nabidh in the morning and he drank it in the evening and we prepared the Nabidh in the night, and he would drink it in the morning.” (Sahih Muslim Book 23, Hadith Number 4977)

Nabeez drink is special because it has a high antioxidant content (Fibonacci 2020). This nabeez drink is the result of soaking dates or raisins that are soaked overnight before being used the next morning (Fauziyah et. al., 2022). The process of self-preparation of this drink takes time, even consumers nowadays prefer to take drinks that are easier to get. Accordingly, the research conducted to produce the best formulation of nabeez drink that has been innovated into tablet form to make it easier for users to take it at any time in an easier way. The specialty of this nabeez drink also has a high antioxidant content (Fibonacci, 2020) which is obtained from the main ingredients which are raisins and dates.

The production of Nabeez drink uses the main raw material which is raisins or *vitis vinifera* L. The raisins used are of the Golden Raisins type because they contain more than 60% natural sugar (Alexandra, et. al., 2020) and rich in fiber as well as phytochemicals such as phenolic compounds. Table 1 shows a comparison of the nutrient content found in Golden Raisins and some other raisins.

Table 1: Value Content for Raisins

Raisin	Moisture	Protein	Total Lipid	Carbohydrate	Total Sugar	Fiber
Golden Raisins	14.90	3.23	0.20	80.02	65.70	3.30
Zante Currant	17.60	3.43	0.22	76.98	62.28	4.4
Corinthian Currant	NR3	2.5	0.4	77.5	NR3	6.7

(Schuster, Wang, Hawkins, & Painter, 2017)

The use of dates is also one of the main raw materials in the production of Nabeez drinks. The selection of dates or *Phoenix dactylifera* L in this study is dates from the Ajwa dates type. Dates are a sunnah food that is often mentioned in Al Quran and Hadith. Ajwa dates contain a high carbohydrate content of up to 80%, but a low protein content of only 2-3% (Parvez, R., Gautam, A. & Vyakhaya., 2022). Table 2 shows the value content found in several types of dates.

Table 2: Value Content for Dates

	Moisture	Protein	Total Lipid	Total Sugars	Ash
Ajwa	22.8	2.91	0.47	74.3	3.43
Medjool	21.32	1.81	0.39	66.47	1.74
Deglet Noor	13.5	1.71	0.40	86.42	1.78

Aljaloud, S., et al., 2020

This study also involves the process of increasing antioxidant content and phenolic content through UVC so that consumers can enjoy drinks that are able to provide optimal nutritional value. The importance of antioxidant content and phenolic content in food is to help users to neutralize free radicals in the body (Haida, Z. & Mansor, H., 2019) which are capable of damaging normal cells, proteins and fats (Thorat et al., 2013). In addition, these antioxidant compounds help improve the body's immune system (Fibonacci, A., 2020).

Ultraviolet (UV) technology has been used in the food industry for a long time. Even referring to Allothman M. (2009), the use of UV rays helps to disinfect water effectively and it helps to decontaminate surfaces and packaging in the food industry. In addition, UV radiation also helps increase the shelf life of food and is able to reduce the number of pathogenic microorganisms found in food (Csapo J. et. al., 2019). There are basically three segments of UV rays, namely UV - A (315–400 nm), UV - B (280–315 nm) and UV - C (<280 nm) (Özer Uyar, G.E., Uyar, B., 2019) (refer figure 1.1). However, the food industry

involves a lot of UV-C rays compared to others. The use of UV-C rays at a radiation rate of 254nm can help to increase the antioxidant content and phenolic content if exposed at the right time and distance (Xu, Z., Meenu, M., & Xu, B., 2020) and Shen et al., 2013).

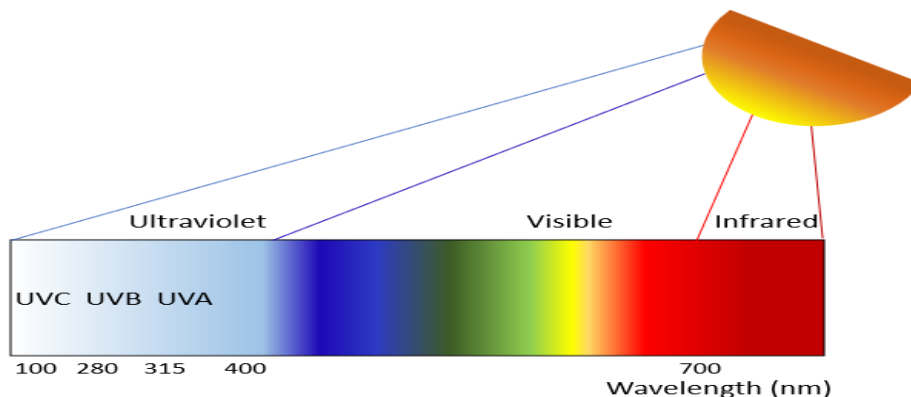


Figure 1: The Light Spectrum
 (Zwinkels, J., 2015)

METHODOLOGY

Nabeez tablet drink is developed through a combination of formulations between raisin, dates, maltodextrin, vitamin C powder, sodium carbonate, grape flavor, aspartame and caramel color. This mixture was developed to produce a nabeez drink that is easily soluble in water and produces an interesting taste and color, especially from the aspect of consumer acceptance.

In order to increase the antioxidant and phenolic content of this drink, raisins and dates were exposed to UV-C radiation for 180 seconds using a UV lamp with a radiation rate of 254nm. (Erkan. M., et. Al., 2008) at a distance of 22 cm. Dates and raisins are exposed to UV-C rays, then a mixture of ingredients is made between dates and raisins at different percentages (refer to Table 3). This mixture then undergoes a Phenolic Compound Content Study (Total Phenolic Content (TPC), Antioxidant content and Gallic Acid Analysis so that the best DPPH and TPC values can be determined.

Table 3: Nabeez Formulation

Ajwa Date	Golden Raisin
0	100
25	75
33.33	66.67
50	50
66.67	33.33
75	25
100	0

Based on the best DPPH and TPC percentage content. 3 nabeez drink formulations are formed. Then the mixture of raisins and dates is soaked to get nabeez juice (Siti, R. O. & Siti, N, O., 2018). The obtained nabeez juice will be mixed with maltodextrin as a body at a ratio of 1:1 to form nabeez puree. The next process involves the drying process. Nabeez puree is then dried to produce powder using a freeze dryer drying method.

All these dry ingredients namely nabeez powder, vitamin C powder, sodium carbonate, grape flavor, aspartame and caramel color are then mixed together before tablet formation is done using Rimek Compression Machine (Refer Figure 2).

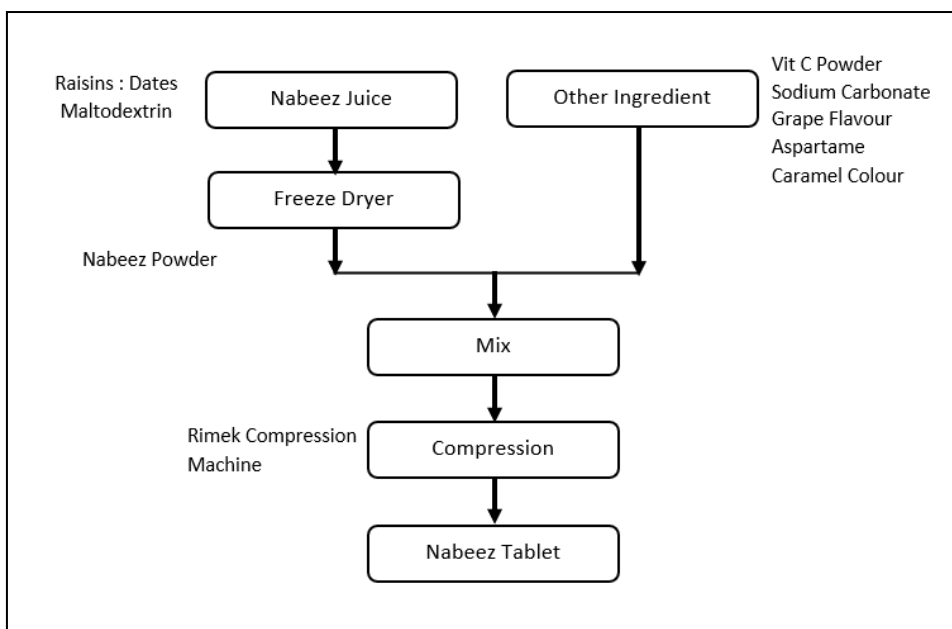


Figure 2: Process to produce Nabeez Tablet

To perform the sensory evaluation process, the produced Nabeez tablets are then dissolved and the sensory evaluation process is performed. At this stage, as many as 3 of the best formulations of mixed dates and raisins are used for the sensory evaluation process. The sensory evaluation process is performed by a trained panelist. Training to product familiarity is done several times before they are presented with real samples (Silva, A.Y.S.L, Binduhewa, A.M.C.U., and Subodinee, A.A.M., 2014).

This nabeez drink sample is coded into 3 different codes and randomly chosen (Sharif, M.M., Butt, M.S., Sharif, H.R., and Nasir, M., 2017) namely 276, 835 and 902 so that there is no bias from the panelists. To ensure that the sensory

evaluation process is done well, a total of 30 trained panelists (Parvez, R., Gautam, A. & Vyakhaya., 2022) did the sensory evaluation. They will do a taste test and at the same time choose the best sample. Each panel will complete the Scoring Test and Hedonic Test form (5-point scale; 1 = dislike very much, 5 = like very much) (Zhi, R., Zhao, L., & Shi, J., 2016) for facilitate the recording system to be done after the sensory evaluation is done.

The information provided by 30 trained panel members was then processed through the Statistical Package for the Social Sciences (SPSS) through ANOVA-Test. The attributes assessed by the panelists were sweetness, carbonation, mouthfeel, astringency, metallicity, aftertaste and overall taste.

RESULT AND DISCUSSION

Based on the research conducted, some results can be shown to fulfill the objective of the study which is to optimize the antioxidant content of Nabeez and make it convenient for consumers.

The determination of the 3 best formulations to determine the variables in the formulation refers to the content of DPPH and TPC on the mixture of dates and raisins. Based on Table 4 hows the 3 variables selected from the main ingredients which are Dates 25% and raisins 75% (902), dates 50%: raisins 50% (835) and dates 33.33%: raisins 66.67% (276).

Table 4: Antioxidant activity of Nabeez Formulation

Ajwa Date	Golden Raisin	DPPH	TPC
0	100	64.34%	1.2934
25	75	79.71%	1.7454
33.33	66.67	48.63%	1.6195
50	50	73.62%	1.8583
66.67	33.33	43.17%	1.4999
75	25	23.52%	0.8835
100	0	32.44%	0.6448

Based on the 3 selected formulations, a sensory test evaluation was performed. The taste test conducted is based on 7 attributes that have been set, namely sweetness, carbonated, mouthfeel, astringent, metallic, aftertaste and overall flavor.

For this sensory evaluation, through ANOVA-Test, P-values greater than 0.05 indicate a significant difference between samples. This is proven through Table 3.2, the findings from Tukey's HSD ("honestly significant difference") show significant differences between products. In fact, the findings show a significant acceptance of the 902 sample from all the attributes measured.

Table 5: Tukey's HSD result for sensory scores of flavored Nabeez Drinks

Attributes	276	835	902
Sweetness	3.90±0.273a	4.15±0.292b	4.59±0.132c
Carbonated	3.98±0.266a	4.20±0.300b	4.50±0.175c
Mouthfeel	3.94±0.280a	4.22±0.317b	4.55±0.161c
Astringent	3.92±0.291a	4.15±0.334b	4.51±0.174c
Metallic	3.90±0.287a	4.18±0.311b	4.50±0.171c
Aftertaste	3.95±0.287a	4.22±0.291b	4.49±0.172c
Overall flavour	3.92±0.292a	4.15±0.341b	4.56±0.159c

The findings of the study were also proven through a spider's web chart to see the acceptance of the best formulation. The results of the study found that from the three formulations 276, 835 and 902, formulation 902 was the formulation chosen by 30 panelists. This is evident when referring to the spider web chart (Refer to Figure 3.1). The gray line represents sample 902, orange line represents sample 835 and blue line represents sample 276. The chart clearly shows that the gray line which represents the highest vote for sweetness, carbonated, astringent, metallic and after taste accepted mouthfeel. Sample 902 was the best and preferred choice for all the panelists. Thus, sample 902 was chosen to develop as a Nabeez effervescent tablet and to be analyzed for the other analysis.

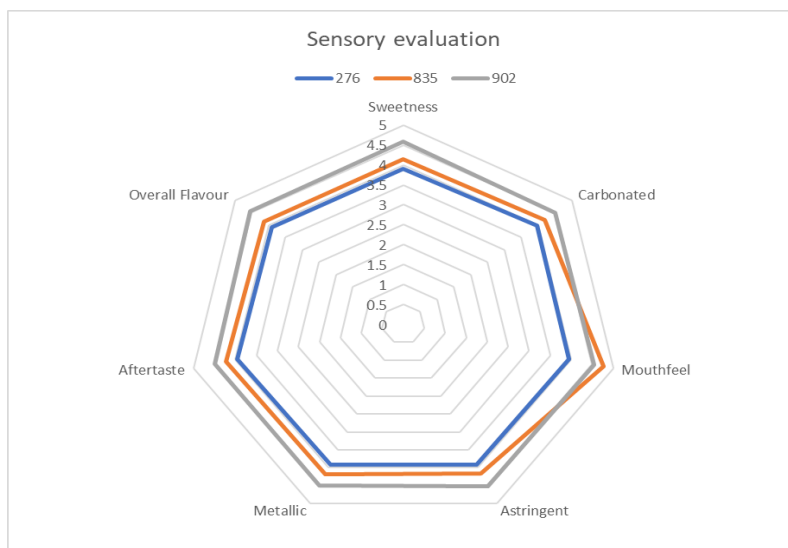


Figure 3: Spider plot for sensory scores of flavored Nabeez Drinks

CONCLUSION

The produced Nabeez drink helps the user to be taken at any time. Apart from being easy, users can still consume nutritious drinks that are rich in antioxidant content. This is in line with the increasingly busy daily life, but the awareness of Muslims to practice sunnah practices in their lives. In fact, this innovation shows that the Nabeez Effervescent Tablet produced is not only well received by the respondents but is also capable of providing good nutritional value to consumers. However, this study can be continued by doing a study on Chemical Test Result for Nabeez Effervescent Tablet.

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