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Development and Sensory Evaluation of Amaranth chocolate.

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Abstract –

The Sensory & analytical study of Amaranth Chocolate was carried out. The main objective of Amaranth Chocolate is to control hunger. Chocolates act as Functional food, preventing in diseases like coronary heart disease & hypertension. The main ingredients of Amaranth Chocolate are Amaranth, puffed rice, Dates & Dark chocolate. Amaranth is one of the pseudo cereals with a high amount of protein compared with other cereals. Amaranth & Puffed rice is available in bulk form in the Satara market. The dates act as a natural sweetener in Amaranth chocolate giving the sweet test. Amaranth & Dark Chocolate have the same health benefits as managing the blood cholesterol level & hypertension conditions. This chocolate is a good source of energy which gives 417.0Kcal/100g.

Keywords- Amaranth, chocolate, Dark chocolate, energy, hunger.

1. Introduction

The Amaranth Chocolate is made by Amaranth, dates, Puffed rice and dark chocolate. Basically, in this chocolate all the ingredients are rich source of antioxidants. According to research of national science academy, men require 2,300Kcal/day and women requires 1,900 Kcal/day. Food that we are eating is not sufficient to meet our daily requirement of nutrients. The lack of these macronutrients & micronutrients can lead to malnutrition.(Dendavey, 2020) Dates are mainly grown in the middle east countries. They are the excellent source of natural sweetener with rich source protein which helps in muscle building. It contains vitamins such as B1,B2,B3,A and C. It plays prominent role in lowering the blood sugar level a helps to reduce blood pressure. It can be eaten in dry or soft form, used in various products such as breads, cakes, ice-creams. They show significant organoleptic properties.(Erukainure,2010)

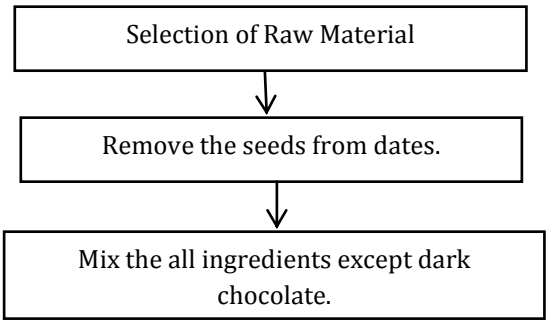
Amaranth also known as 'Ramdana' and 'Rajgira' which is classified as starchy cereal. It is gluten free but not digestible in the raw form. It contains greater amount protein than other cereals. Lysine is an amino acid which is found in law quantity in other grains. It is good source of B7 Vitamin and calcium. The phytosterols found in amaranth grain helps in lowering the cholesterol level. It contains significant amount of dilatory fiber which helps in preventing the arthrosclerosis.(Bhavani, 2018) In the early civilization people were recognized the importance of six nutrient. Amaranth is beneficial in the growth of infants and it is good source of energy. It is the best source of macronutrients and shoes anti-inflammatory effect on body (Venskutonis & Kraujalis, 2013) In the developing countries amaranth grains received a great attention to overcome the protein malnutrition. The c- and d- tocotrienols are tocopherols present in amaranth seeds with the unsaturated form of vitamin E. It is a gluten free grain and hence easily digested. It also has several health benefits such as lowering blood plasma level, promoting the immune system, reduce es the blood sugar level and also helps to maintain the of hypertensions and anemia. Traditionally it also used to recover from illness and as ingredient in various fasting dishes. (Bhat et al., 2015)

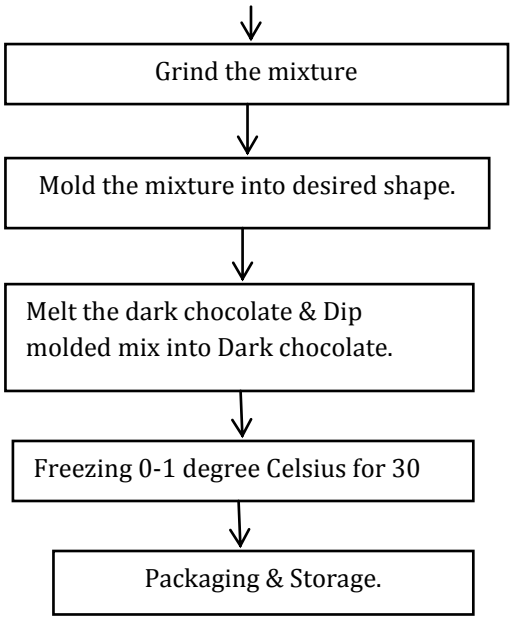
Dark cholates are powerful source antioxidants with several health benefits. The flavon-3-ols compound present in dark chocolate helps in preventing the cardiovascular diseases. It also helps to prevent the arthrosclerosis by thickening and hardening and hardening of arteries. The presence of antioxidants reduces the oxidative stresses and helps to increase the endothelial function ,sensitivity of insulin receptors. It does not spike the blood sugar level. (Haritha et al., 2014)

2. Materials and Methods.

Materials: - Materials are procured from the local market.

Flow chart of preparation of Amaranth Chocolate.





3. Preparation of Amaranth chocolate –

1. Selection of raw material – For the preparation of Amaranth chocolate Amaranth, puffed rice, dates, and dark chocolate is taken from Satara local market.

2. Cleaning – Seeds are removed from dates.

3. Preparation of Mixture – Take Amaranth, puffed rice, and Dates for the mixture except for dark chocolate.

4. Molding – Take the desired mold & grease it with a little amount of butter.

5. Melt the dark chocolate by using standard procedure.

6. Dipping – Dip the molded mixture into dark chocolate & freeze at 0-1 degree Celsius.

7. Packaging – Primary packaging for Amaranth chocolate is in butter paper & secondary packaging is in Aluminum foil.

8. Storage- Store the product in the refrigerator or freezer.

Analytical Methods: -

1. **Determination of moisture content** –

The moisture content of is determined by using the hot air oven method. (AOAC,2000)

Calculation: -

$$\text{Moisture (\%)} = \frac{(W1-W2)}{W1} \times 100$$

Where, W1= Weight (g) of the sample before drying

W2 = Wight of the sample after drying

2. Determination of total Ash content: -

The Muffle furnace method is used to determine the total ash content of the food sample.

$$\text{Ash (\%)} = \frac{\text{Weight of ash}}{\text{Weight of sample}} \times 100$$

3. Determination of protein content: -

The Kjeldahl method is used to determine the Protein content in the food sample.

$$\text{Protein (\%)} = \frac{(A-B) \times N \times 1.4007 \times 6.25}{W}$$

Where, A = Volume (ml) of 0.2N HCL Used sample titration

B = Volume (ml) of 0.2 N HCL used in blank titration

N = Normality of HCL

W= Wight of sample

14.007 = atomic weight of nitrogen

6.25 = the protein-nitrogen conversion factor.

4. Determination of Fat content: -

The fat content is determined by using the Soxhlet apparatus method.

$$\text{Fat (\%)} = \frac{\text{Weight of fat}}{\text{Weight of sample}} \times 100$$

Result & Discussion

1. Proximate Analysis – The proximate analysis of the most acceptable sample was carried out.

Sr. No	Nutrients	Values Per 100 g
1.	Energy	417.70 Kcal
2.	Carbohydrate	63.45 g
3.	Fat	14.83 g
4.	Protein	7.54 g
5.	Ash	1%
6.	Moisture	12.84%
7.	Sugar	40%

Table 1:- Proximate analysis results of Amaranth chocolate.

2. Sensory Analysis

Amaranth chocolate is prepared with different combinations of almonds, peanuts, oats & Amaranth. They are analyzed for sensory analysis. The hedonic rating is used to measure the acceptability of the 9-point hedonic rating to scale food products. The particular Faculty members & Students are asked to rate chocolate.

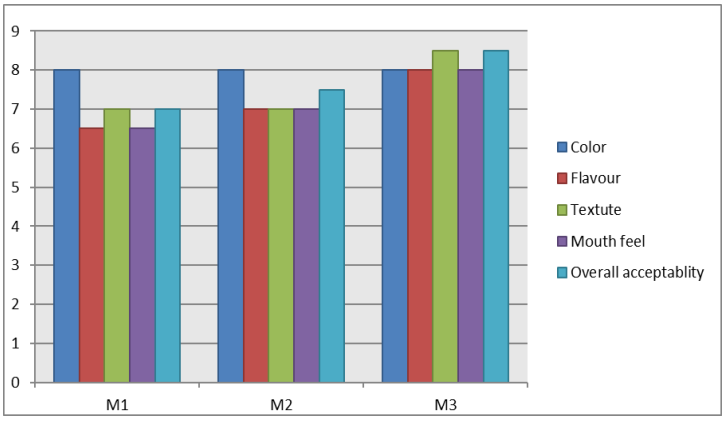


Chart 1:- Sensory Evolution of Amaranth chocolate.

Fig no.1 Final Formulation Amaranth cholate

Conclusion

The Amaranth chocolate is prepared with acceptable physiochemical & sensory characteristics. It is a rich source of food energy and healthy fats. Amaranth and puffed rice are useful to control hunger as well as give soft texture to the chocolate. These ingredients are available at low price in the satara local market. The final composition of the chocolate gives 417.70Kcal/100g.

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