



Parvatibai Chowgule College of Arts and Science
Autonomous

Accredited by NAAC with Grade 'A' (CGPA Score 3.41 on a 4 Point Scale in 3rd cycle)
Best affiliated College-Goa University Silver Jubilee Year Award

BEST PRACTICE AREA: TEACHING LEARNING EVALUATION
DEPARTMENT OF ZOOLOGY

BEST PRACTICE: PROJECT BASED PRACTICAL

1. Title of the Practice: Project based practical (Comparison of Nutrient Labels)

2. Objectives

To enable students, learn and understand concepts through field work. At the end of the course students are able to analyze and interpret results. The students understand the importance of team work and comprehend the information attained for presentation.

3. The Context

This best practice is adopted by the faculties of department of zoology. This type of project based practical requires to be designed in a manner that will enable students understand the theoretical concepts and its application. The activity is designed in such a manner that it enables students to analyze the different aspects of the activity and use theoretical concepts to solve the problems in a group. It helps them build team work and understand different food groups.

4. The Practice

This practice is a field based/ project based practical where in students are required to go out in the field during the practical hours and complete the project.

Example: Comparison of nutritional labels if different food groups.

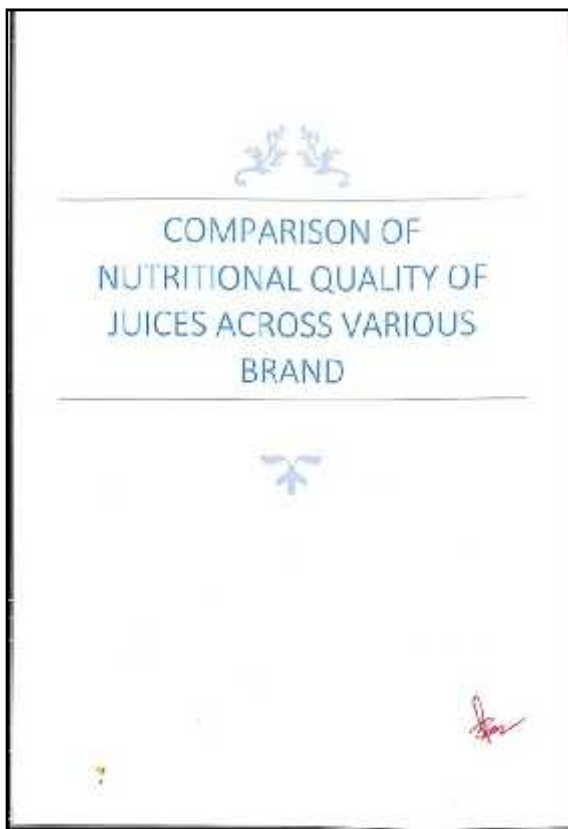
This practical is a component of the course Health and Nutrition of TYBSC. It is in line with the concepts taught in theory as it requires them to interpret the results. Students should be taught about the different food groups and their importance indifferent diets, based on requirements of individuals specially those suffering from diet based diseases.

On the day of the practical students go to different supermarkets in their respective groups and assess the nutritional labels of a food group belonging to different brands. The distribution of the food groups for eg: noodles, jams, biscuits, flour etc. is done by the respective faculty prior to the day of the activity. The students analyze atleast 4 brands in each food group allotted to the group. After careful observation they compare the macro and micro nutrient quantities displayed on the nutrient

label's and then submit their portfolio. This practical is a component of the continuous assessment for practical for which the students are evaluated based on their observations, results and the conclusions related to different diets. The students submit their results in a form of a portfolio and presentation followed by an interaction with the faculty and students in the class.

5. Evidence of Success

Students were able to work in their groups to solve the activity given to them. They were able to write a good report based on the different components related to the activity. They are able to evaluated and read nutritional labels .The same was assessed as a continuous assessment for practical's which had two components i.e portfolio submission and presentation.



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Introduction

All packaged foods come with a nutrition label meant to provide you with the information you need to know exactly what you're eating. Understanding what's in the foods you consume helps you make healthier choices (Reiser, 2017).

The nutrition label provides key information such as serving size, calories, total fat, percent fat, cholesterol, sodium, carbohydrate and vitamin content. The label also lists a list of the ingredients. This data helps you stay on track with your everyday goals. It also helps you avoid certain ingredients if you have a food intolerance or are following a diet that excludes certain components. An example being (Reiser, 2017).

The current Indian government has suggested and proposed all drink companies of India to have at least 25% of fruit content in their drinks, so that it has some nutritive character added to it and along with its benefit. The farmers working towards production of fruits is but a struggle has the biggest share in fruit juice industry with about 60% share and all other fruits altogether have the remaining percentage (Singh, 2018).

Dietary recommendations for healthy eating include the consumption of fruit juices whose beneficial health effects are due, in part, to vitamin C, a natural antioxidant which may limit the development of major clinical conditions including heart disease and certain cancers. However, many fruit juices also have phenolic compounds and carotenoids, some of which have antioxidant properties and whose intake have also been inversely related with heart disease and cancers (Gambier, White, McPhail, & Duthie, 2009).

The antioxidant relevance of such phenolics is uncertain as they may be poorly absorbed and rapidly metabolized and thus have limited antioxidant ability in vivo. In contrast, vitamin C is highly bioavailable and is consequently one of the most important water-soluble antioxidants in milk, efficiently scavenging reactive oxygen species such as O₂⁻, OH⁻, and singlet oxygen. Moreover, by efficiently trapping peroxyl radicals in the aqueous phase of the plasma or cytosol, vitamin C can protect lipoproteins and low density lipoproteins from peroxidative damage. Consequently, when evaluating the antioxidant activities of fruit juices in disease risk and health, it is important to consider the contribution of vitamin C in addition to that of phenolic compounds with antioxidant activity in chemical systems (Gambier, White, McPhail, & Duthie, 2009).

Methodology

For this experiment, first we brainstormed certain ideas. We decided that the 5 brands would be Tropicana, Real, Minute M&L B Natural and Ceres. We then chose the flavours to be Orange, Mango and Mixed fruit as these were readily available in most markets.

We further divided ourselves into groups and went to supermarkets and grocery stores. On finding any one of the brands with the same flavour mentioned above, we clicked picture of the Nutritional value. Once we got all the brands we tabulated the value and evaluated all the various brands for a certain flavour of juice.

To form the graphs, Excel sheet was used.

Results and Discussion

Orange Juice

1. Brand A (Tropicana)



Nutritional Information	Per 100ml
Energy	50 kcal
Total Carbohydrates	12.4 g
Sugars	12 g
Protein	0.1 g
Total Fat	0
Sodium	34 mg
Potassium	82 mg

2. Brand B (Real)



Nutritional Information	Per 100ml
Energy	54 kcal
Total Carbohydrates	13.5 g
Natural Fruit Sugars	6.7 g
Added Sugars	6.8 g
Protein	0.6 g
Total Fat	0
Calcium	4 mg
Iron	0.3 mg

3. Brand C (Minute Maid)



Nutritional Information	Per 100ml
Energy	54 kcal
Total Carbohydrates	13.6 g
Sugars	11 g
Protein	0
Total Fat	0

4. Brand D (B Natural)



NUTRITIONAL FACTS PER 100ml*

ENERGY	56 kcal
PROTEIN	0.2 g
CARBOHYDRATE	13.8 g
OF WHICH	
- NATURAL FRUIT SUGARS	6.3 g
- ADDED SUGARS	7.5 g
FIBRE	0 g
CAECIUM	0.3 mg
SODIUM	0 mg
POTASSIUM	85.9 mg
VITAMIN C	30.8 mg

*All values are based on 100ml of juice. Values are based on 100% juice blend.

Nutritional Information	Per 100ml
Energy	56 kcal
Total Carbohydrates	13.8 g
Natural Fruit Sugars	6.3 g
Added Sugars	7.5 g
Vitamin C	30.8 mg
Total Fat	0
Calcium	0.3 mg
Iron	0.3 mg
Sodium	0 mg
Potassium	85.9 mg
Protein	0.2 g

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5. Brand E (Ceres)



NUTRITIONAL INFORMATION	
Energy	100 kcal
Total Carbohydrates	22 g
Sugars	22 g
Dietary Fibre	0 g
Protein	1 g
Total Fat	0
Sodium	5 mg
Vitamin C	60 mg

Nutritional Information	Per 100ml
Energy	100 kcal
Total Carbohydrates	22 g
Sugars	22 g
Dietary Fibre	0 g
Protein	1 g
Total Fat	0
Sodium	5 mg
Vitamin C	60 mg

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Nutritional Value of various Brands for Orange

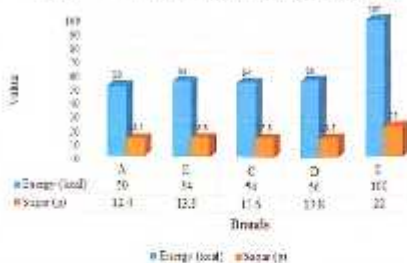


Fig. Graph depicting the sugar and energy of the 5 different brands for orange juice.

In the graph given above:

- It is clearly noticed that Brand E (Ceres) gives the highest amount of energy i.e. 100 kcal per 100ml. The remaining four brands give pretty much the same amount of energy with Brand A (Tropicana) being the lowest with 56 kcal. Brand B (Real) and C (Minute Maid) give equal amount of energy, i.e. 56 kcal. Brand D (Natural) gives 56 kcal.
- If we look at the sugar graph, the trend is the same with Brand E being the highest (22 g) followed by D (13.8), C (13.5), B (13.8), A (13.8).
- It is also noticed that Ceres has the highest amount of protein present with 1g, followed by Real (0.4g), B Natural (0.2g), Tropicana (0.2g) and lastly Minute Maid (0).

We would offer Brand E to a person who undergoes a lot of exercise or physical labour as she will require a lot of energy which will be obtained from the juice. We would also recommend Brand A to any patient who has a high sugar level or is diabetic as this particular brand has very sugar level.

Conclusion

While comparing the nutritional values for orange juice, it was seen that the energy level was seen highest in Ceres with 100 kcal and lowest in Tropicana 56 kcal. Real and Minute Maid give equal amount of energy, i.e. 56 kcal. If Natural gives 56 kcal. If we look at the sugar graph, the trend is the same with Ceres being the highest (22 g), followed by B Natural (13.8), Minute Maid (13.5), Real (13.5) and Tropicana (12.4). It is also noticed that Ceres has the highest amount of protein present with 1g, followed by Real (0.4g), B Natural (0.2g), Tropicana (0.2g) and lastly Minute Maid (0). Hence, we would recommend Ceres orange juice to a person who works out a lot, exercise or undergoes immense physical activity.

Whereas, for Mango flavoured across the brands it was seen that the energy level was similar throughout as well as the sugar level. We would recommend this flavoured, irrespective of the brand, to young adults and teens who have a high energy requirement.

While evaluating the brands for mixed fruit flavour, the energy content was similar across Real, Minute Maid and B Natural, while Tropicana had the lowest amount of energy level. The sugar content was also similar across brands. Hence, we would recommend Tropicana to people with a comparatively more sedentary lifestyle, followed by Ceres. People with high energy requirements would be recommended Real, B Natural and Minute Maid.

References

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6. Problems Encountered and Resources Required

Implementation of the practice requires the faculty to complete the respective modules before the activity is announced as the students have to understand the nutrients well

Food groups allotted should be easily available in nearby local supermarkets having atleast 3-4 brands of the required food products to make it feasible for the students. Students have to be given sufficient time during practical's to record and compile all their data in the form of a portfolio
