

BUTTERFLY BLUE PEA FLOWER SYRUP AND ITS USE AS A SUBSTITUTION OF BLUE CURAÇAO SYRUP IN MIXOLOGY

Kaustav Dutta

Research Scholar & Assistant Professor, Guru Nanak Institute of Hotel Management,

Jis University, WB, India

E-mail: kaustav.dutta@gnihm.ac.in

ABSTRACT

The hospitality industry today has been recognized as one of the largest industries of the world and a restaurant is considered as one of the prime fields which brings quite a great deal of profit and as well as client satisfaction. Moreover, to achieve these goals, restaurant owners are following practices, which can be harmful for the environment. The purpose of the research is to discuss the impact of restaurant industry in sustainability of environment. This review paper is based on primary data like observations, interviews, and secondary data, which is mentioned in various reports, newspapers, journals, books and websites. This research paper starts with the different negative impact of the restaurant industry on the environment and end with how we can reduce these impacts to sustain the environment. Sustainability practices will help the restaurant for reducing operating costs and save environment from toxins and adulterants, which are involved in food making process.

Keywords: Conceptualisation, Accessibility, Ingredients, Cocktails, Flavours.

1. BACKGROUND OF STUDY

Few traits are as important to the appearance and quality of foods as colour; from the deep red of a ripe apple to the electric blue of a sports drink, colour is often one of the first sensory qualities of a product that the consumer encounters. Because of this, food manufacturers often add synthetic dyes to their products to simulate or improve desired colours, but research has shown these dyes can be harmful to humans (Chu et al., 2016) and result in hyperactivity in children (McCann et al., 2007). Because of these concerns, there has been growing interest in the discovery and use of natural colorants, among which blues are rare and tend to be sensitive to processing and storage conditions (Chu et al., 2016).

2. SIGNIFICANCE OF STUDY

Most common blue coloured syrup used in upscale bar is the most popular Blue Curacao. Curaçao (the Caribbean island) produces the raw fruit and an essential ingredient for the Blue Curaçao Liqueur: the Laraha orange, which gives the prominent flavour of syrup and hence the name. This traditional syrup is perfect to make blue cocktails or mocktails, such as a Blue Lagoon mocktail or Blue Hawaiian mocktail. The syrup is made with water, sugar, orange peel, a little citric acid or lemon juice, and blue food colouring. It has a strong notes of orange zest on the nose, followed by bitter-sweet

orange taste on the palate and it is suitable for vegan, vegetarian diets.

3. REVIEW OF LITERATURE

To make the Blue Curaçao, and give it the distinctive blue hue, food colouring has to be mixed with the liqueur and subsequently filtered. Commercially, the particular colour of the Blue Curaçao is known as FD&C Blue No. 1 (or Brilliant Blue). It's an organic compound that is chemically constructed in a lab. This organic dye is often used in food, like ice cream and sweets, but sometimes can also be used in cosmetic products like mouthwash. The different organic compounds undergo a synthetic process, which causes a certain chemical reaction to create the blue colouring powder. Aside from synthetic organic food dye, there are also natural—but very rare—food coloring options like using Butterfly Pea Flower, which creates a blue colour that resembles more of the FD&C Blue No. 2. *Clitoria ternatea*, commonly known as Asian pigeonwings, blue bell vine, blue pea, butterfly pea, cordofan pea or Darwin pea is a plant species belonging to the family Fabaceae, a subtropical shrub native to South East Asia.

A relatively easily maintained, herbaceous twining vine, the butterfly pea produces deep blue to purple flowers capable of blooming nearly year-round (Park and Knox, 2016). Being drought tolerant and possessing a high growth rate, this popular

ornamental is often found wild in its native Asian habitat or cultivated in gardens and landscapes. It also has a deep history as a medicinal herb (Makasana et al., 2017; Rojas-Sandoval, 2018). The flowers, leaves, young shoots and tender pods are all edible and commonly consumed, and the extracts of the flowers can serve as a natural blue colorant, tend to be convenient to use, and possess a longer shelf life than comparable plant-based colorants (Siti Azima et al., 2017 & Mukherjee et al., 2008).

In recent years, the plant has also been studied for its antioxidant content and healthy properties. Dr. Rachael Ajmera, MS, RD in one of his article published at Healthline, July 8, 2021, suggests that butterfly pea flower may help ensure skin and hair health, promote weight loss, and reduce blood sugar levels. It is also rich in anthocyanins, which are the antioxidant compounds responsible for its unique colour. For this reason, manufactures may use butterfly pea flower in cosmetics or as a natural dye for foods, drinks, and textiles.

Gastronomic use of butterfly pea flowers are traditionally found in Thai and Malaysian cuisines, lending their deep blue colour to sticky rice desserts and puddings. In India, it is revered as a holy flower, used in daily puja rituals. Often featured in cocktails, butterfly pea flower is an ingredient well-known for its brilliant blue hue. The dried flower petals are also commonly brewed into an herbal tea, often alongside ingredients like lemon grass, honey, and lemon. The acidity of lemon hits the pea flower tea, changing the blue alkaline colour to a vibrant violet, giving the final drink a magical effect. This quality makes butterfly pea flower a popular ingredient among mixologists for specialty cocktails in recent times.

However the problem with natural food colouring, blue pea here for instance, is that it fades faster than synthetic dye. Liquid natural food colouring can fade in a matter of months when exposed to certain environmental conditions or direct sunlight. So here is a complex experimental study on creating blue coloured syrup with blue pea extracts to be used in mixology as a substitution of blue curaçao syrup.

4. OBJECTIVE OF STUDY

RECIPE			
INGREDIENTS			DETAILS
SL	ITEMS	QNTY	
01	Boiling Water	150 mL	Serves : 14 nos.
02	Caster Sugar / sugar-free	150 g	KCAL : 43 per serving
03	Blue pea liquor	300 ml	Cooking time : 20 minutes

As a research scholar, the objectives of this study are laid upon:

- To explore the probabilities of making a butterfly blue pea syrup.
- To establish butterfly blue pea syrup as a useful bar ingredients.
- To build up drink recipe butterfly blue pea syrup as a twist.
- To collect numerous feedback as a tasting sample for the formulated drink.
- To appraise and recommend the use of butterfly blue pea syrup in future drinks recipes.

5. ANALYSIS & DEVELOPMENT

Simple syrups are traditionally made by boiling down a 1:1 water and sugar solution. This process concentrates the sugar, turning the mixture into a thick and glossy syrup. Super easy! Here, we managed on blending sugar syrup and blue pea-infused tea, to create our desired syrup.

For this recipe, we will need to get dried butterfly pea flowers which you can find at your local Asian food store or online. You can also dry off fresh plucked flower to make your own tea at home, only to remember to peel off the stalk before brewing. The blue tea will then be the base of the syrup, which we will blend with sugar syrup until glossy and concentrated.

The blue syrup can achieve different consistencies, depending on how long infusion takes place. It can be runny like maple syrup or thick like honey. To make a sugar free a healthier option, swap sugar with zero-sugar sweetener erythritol. This way, the syrup will have practically zero calories — totally guilt-free!

- Step 1: Start by preparing the blue tea which will be the base of the syrup. Steep dried butterfly pea flowers in hot water for about 5 minutes or until the tea looks light blue. Lighter the blue tea, the syrup will have a nice delicate colour, increase the amount of flowers or steep them for longer to get a dark blue tea and consequently darker syrup. We recommend infusing the butterfly pea tea in a clear glass or white bowl, so you can see how light or dark it is. Once the blue tea base is ready, pour it into a pot and keep it aside.

- Step 2: Second step is to produce the sugar syrup. Bring the sugar-water 1:1 ratio mixture to a gentle boil over medium heat, stirring until the sugar is fully dissolved. Now that the mixture boils, all we have to do is to let it simmer. The sugar will concentrate as the water evaporates, and will turn into thick and glossy syrup.
 - Step 3: The final step is the blending. Add some citrus peel of orange in a clear decanter / mason jar and pour the syrup and tea liquor together to make a blend. Don't worry if you see the change in colour from blue to violet, as always know the longer the infusion will be, the denser and more concentrated the blue colour of the syrup will be established. 72 hours is usually good. Let the syrup cool completely. Seal airtight and refrigerate. Usually last 2-3 Weeks.
- And once the butterfly pea syrup is ready, the fun begins! One can drizzle this blue syrup over pancakes and waffles just like you would do with maple syrup. Or why not drizzle it over a spongy blue cake for extra moisture and sweetness? One

can also use this blue pea syrup to prepare fancy cocktails, colourful iced teas, and even a colour-changing lemonade. And another way you can use it is to garnish ice creams, sorbets, and fruit salads

6.1 FORMULATION OF SYRUP

Blue pea infusion for 3-5 minutes: The blue pea syrup will be runny, similar to maple syrup, as the sugar concentration will be about 60%. The syrup should weigh 250 g (8.8 oz) for the default ingredients.

Blue pea infusion for 8-10 minutes: The butterfly pea syrup will be thicker (and sweeter), similar to honey, as the sugar concentration will be about 80%. The syrup should weigh 180 g (6 oz) for the default ingredients.

Anything between these two infusion time and weights will still be good; the syrup will have the sweetness and texture of something between maple syrup and honey. Don't cook the syrup for too long, or it will turn into caramel!

6.2 FORMULATION OF RECIPE

Preparation Time: 10 minutes	DEEP BLUE PEA	Servings:1
	The classical blue lagoon with a tropical twist!	

▪ INGREDIENTS

1. 1 oz lemonade (or 30 ml)
2. ½ oz blue pea syrup (or 20 ml)
3. Ice (crushed or cubes).
4. Garnish : lemon wheel and maraschino cherry

▪ INSTRUCTIONS

1. Add blue pea syrup and lemonade to a shaker with ice and shake until well-chilled.
2. Strain into a cocktail glass over crushed ice.
3. Garnish with a lemon wheel and maraschino cherry.

6. SENSORY EVALUATION TEST

This evaluation plays an important role in developing of drink recipe with alternative ingredients and to check the acceptance of the targeted population. The sensory evolution was conducted with randomly 25 selected students of Hotel Management and experts in food and beverage service for the testing the sample and table 2 shows the findings / scores, which were documented based on presentation, tasting nodes and overall experience and after-taste. The score

rating card mentioned on the table 1 below with their value.

7. CRITICAL EVALUATION AND INTERPRETATION

The aim of the article is to focus on establishing blue pea syrup as a cocktail ingredient. The syrup was made to perfection and in the most hygienic process of extractions was incurred. More than 72 hours were used for the infusion to set in and sealed to keep it in cool and dry place. The syrup was used like any cocktail syrup available in market to recreate the intended drink minus the artificial colouring that of FD&C Blue No. 1. The desired drink was, well appreciated by its illustrious colour, picturesque presentation and its floral- tropical taste. However critically acclaimed, the curated drink was intended to be bright blue in colour, didn't turn out so, but a vibrant violet in nature. Butterfly blue pea liquor being alkaline in nature, reacts with the citric acid of lemon and turns into violet giving the drink a magical change in colour effect. This effect may not create a likewise representation of blue lagoon, but the vibrant violet establishes the drink in its own true form.

SL	EVALUATION / COMMENTS	PRESENTATION SCORE	TASTING SCORE	EXPERIENCE SCORE
01	Extremely Disliked	0/25	0/25	0/25
02	Disliked	0/25	0/25	1/25
03	Satisfactory	1/25	5/25	8/25
04	Good / Liked	15/25	9/25	10/25
05	Better / Much Liked	5/25	9/25	2/25
06	Extremely Liked	3/25	2/25	3/25
07	Scope for Improvement	1/25	0/25	1/25

Table1: Score Card for evaluating drink recipe based on butterfly blue pea syrup






	COCKTAIL Tasting Notes	
COCKTAIL	NAME / NOTES :	
1		
PRESENTATION SCORE :		
TASTING SCORE :		
EXPERIENCE SCORE:		

Table2: Tasting card for evaluating drink recipe based on butterfly blue pea syrup

8. CONCLUSION

Blending is process by which the flavouring agent must be extracted from the natural substance which is used as an ingredient and is made perfected over the ages. Plant flower liquors are produced by the infusion method, in which the flower is steeped in the warm water which absorbs aroma, flavour, and colour. Other ways of extractions are percolation or

distillation. The article mainly focuses on the art of blending of natural solids into infused syrups for intensive use as modern day bar ingredients following the latest trend of use of natural colouring to suppress the artificial one. The syrup is tasted for its medicinal properties and shelf life and recommended to be used in operations as a cocktail key ingredient.9.

REFERENCE

1. Chu, B.-S., J. Wilkin, M. House, M. Roleska, and M. Lemos, 2016. Effect of Sucrose on Thermal and pH Stability of Clitoria ternatea Extract.
2. Chusak, C., T. Thilavech, C.J. Henry, and S. Adisakwattana, 2018. Acute effect of Clitoria ternatea flower beverage on glycemic response and antioxidant capacity in healthy subjects: a randomized crossover trial. BMC Complementary and Alternative Medicine 18:6.
3. Makasana, J., B.Z. Dholakiya, N.A. Gajbhiye, and S. Raju, 2017. Extractive determination of bioactive flavonoids from butterfly pea (Clitoria ternatea Linn.). Research on Chemical Intermediates 43:783–799.
4. McCann, D., A. Barrett, A. Cooper, D. Crumpler, L. Dalen, K. Grimshaw, E. Kitchin, K. Lok, L. Porteous, E. Prince, E. Sonuga-Barke, J.O. Warner, and J. Stevenson, 2007. Food additives and hyperactive behaviour in 3-year-old and 8/9-year-old children in the

- community: a randomised, double-blinded, placebo-controlled trial. *The Lancet* 370:1560–1567.
5. Mukherjee, P.K., N.S. Kumar V Fau - Kumar, M. Kumar Ns Fau - Heinrich, and M. Heinrich, 2008. The Ayurvedic medicine *Clitoria ternatea*--from traditional use to scientific assessment.
 6. Park, B.S. and G.W. Knox, 2016. Flowering Vines for Florida. CIRCULAR 860. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <https://edis.ifas.ufl.edu/mg097>
 7. Rojas-Sandoval, J., 2018. *Clitoria ternatea* (butterfly-pea). Invasive Species Compendium, <https://www.cabi.org/isc/datasheet/55416>.
 8. Siti Azima, A.M., A. Noriham, and N. Manshoor, 2017. Phenolics, antioxidants and color properties of aqueous pigmented plant extracts: *Ardisia colorata* var. *elliptica*, *Clitoria ternatea*, *Garcinia mangostana* and *Syzygium cumini*. *Journal of Functional Foods* 38:232–241.
 9. Yanti, Y., T. Setiawan, and B.W. Lay, 2018. Antibacterial, antibiofilm and quorum sensing inhibitory activities of *Clitoria ternatea* anthocyanin against *Streptococcus mutans*. *International Journal of Infectious Diseases* 73:143–144.