

Zero Waste Pisco sour

Entry for the 11th International Contest for Note-by-Note Cooking: "Food waste"



Participants

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Concept

We present a zero-waste cocktail adapted from a Peruvian-style “pisco sour” (IBA, 2021), prepared with a practical note by note approach, replacing the lemon juice and egg white with less wasteful, chemical-derived options already in use in the bartending field, and using an alcohol base of ethanol diluted in water.

Background

Citrus is perhaps the most abundant waste in bar service. After juicing, the peels have traditionally been discarded. Recently, novel recipes and methods to reduce or eliminate citrus waste have been developed by food waste conscious bartenders, i.e., (English, n.d.).

Egg white is a frequent foaming agent in the kitchen and the bar. Its use in the bar generates food waste in the form of discarded yolks and is not suitable for vegetarians or people with food allergies.

Cocktails are a good format for note by note cooking, and have been discussed at length (Burke et al., 2021; Everts, 2012) and are in many ways simpler to implement than more complex systems such as solid foods.

We propose a sour cocktail that replaces lemon juice with “super juice” (O’Neil, 2023), and egg whites with a methylcellulose “super syrup” (Kos, 2022).

Super juice replaces citrus juice with a 6% citric acid solution with the same citric acid weight in citrus zest. It better utilizes the fruit and has a longer shelf life due to the absence of easily oxidized succinic acid.

Super syrup replaces foaming proteins with hydroxypropyl methyl cellulose (HPMC) and adds texture with xanthan gum.

Ingredients

Serves 4

Liquor (ABV 42%, 84 proof)

- 100 g food grade 95% ethanol
- Enough filtered water to make 240 ml.

Super juice

- 8 g lemon zest
- 8 g citric acid
- 0.15 g sodium citrate
- 130 g filtered water

Foaming syrup

- 0.75 g methylcellulose (HPMC)
- 0.20 g xanthan gum (glucose: mannose: glucuronic acid 2:2:1 polymer)
- 75 g sugar
- 74 g filtered water

Procedure

“Liquor”

1. Mix ethanol and water. Reserve

Super juice

1. Thoroughly mix the chopped or grated zest with the citric acid in a hermetically closed vessel and let rest overnight. This is the *Oleo citrate*.

2. Mix the *oleo citrate* with water, stirring until all the citric acid is dissolved. Strain or filter.

Alternatively, blend all the ingredients at high speed for one minute. This method is quicker.

Foaming syrup

1. Hydrate HMPC in 90°C water. Let cool and hydrate completely. Reserve
2. Disperse Xanthan in sugar and blend into the HMPC solution. Let fully hydrate, ideally overnight.

Cocktail assembly

1. In a cocktail shaker with ice, add 240 ml ethanol solution, 120 ml super juice, 8 drops (0.4 ml) 20% saline solution, and 120 ml super syrup.
2. Shake and strain into a chilled glass.
3. Garnish with drops of bitters on the foam.

Reception

The cocktail was tasted by the professors at the school of Gastronomy and was pronounced barely distinguishable from the traditional drink, and a good cocktail, only not at 9 AM on a Thursday at the office!

Different bitters were tested as a garnish. The preferred was mandarine bitters.

Space for improvement

This is a practical application of note-by-note methods in cocktail-making, which is not novel, but rather part of a movement happening in bars where the chemicals mentioned are used to attain a more sustainable bar service.

A proper note by note approach requires pure chemicals: limonene and other terpenes such as α and β -pinene, sabinene, etc., for the lemon aroma (Aguilar-Hernández et al., 2020); ethyl esters and terpenoid alcohols such as ethyl butyrate, 2-phenylethanol, citronellol, linalool and nerol for a proper pisco aroma profile (Napa-Almeyda et al., 2023). Due to the available resources at present, this is best left for a future project.

Photos



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