

COMPOSITION OF YOUNG COCONUT WATER

Proximate	g/100 g
Energy	109 kJ
Moisture	95.2
Protein	0.2
Fat	0.0
Ash	0.2
Fructose	2.4
Glucose	2.7
Sucrose	1.5
Total Sugar	5-6.6

Minerals	mg/100 g
Calcium	12.0
Chlorine	118
Magnesium	10-11.0
Manganese	1,020.0
Phosphorus	9.0
Potassium	186-294
Sodium	5-25

Vitamins	Content
Nicotinic acid	0.64 µg/mL
Riboflavin (Vit. B2)	0.01 µg/mL
Niacin (Vit. B3)	0.10 mg/100g
Ascorbic Acid (Vit. C)	2.2-3.7 mg/mL

Amino Acids	Mg/100mL
Alanine	10
Arginine	32
Aspartic Acid	18
Glutamic Acid	43
Glycine	10
Isoleucine	8
Leucine	14
Lysine	10
Phenylalanine	10
Proline	8
Serine	11
Threonine	9
Tyrosine	6
Valine	12

References:
 Coconut Technical Handbook by UCAP, 2015
 Philippine National Standard (PNS) for Fresh Tender Coconut, 2008
 PCA- Product Development Department, 2010

PRESERVATION TECHNIQUES

To prolong the shelf-life of coconut water, various preservation techniques are recommended:

Ultra High Temperature (UHT) involves heating the water to 130 °C to 150 °C for 2-45 seconds; the product is aseptically packaged in order to obtain a stable shelf -life (1 to 2 years at ambient temperatures), but affects the coconut water's natural flavor.

Microfiltration is a type of physical filtration process where a contaminated fluid is passed through a special pore-sized membrane to separate microorganisms and suspended particles from the liquid

Cold Preservation is the process that involves filtration, bottling and temperature control ((0-4°C), allowing the bottled coconut water to stay fresh from 10 days to 3 weeks and retain its natural flavour. This is the most preferred method for extending the shelf-life of the coconut water

FOOD PRODUCT DEVELOPMENT DIVISION

Albay Research Center
 Research Development Branch
 Philippine Coconut Authority
 Banao, Guinobatan, Albay
 E-mails: pca_arc4503@yahoo.com
fpdd.pca@gmail.com
 0917-558-1447

FPDD Guide No. 5 - Rev. 2, Series of 2019

PHILIPPINE
 COCONUT
 AUTHORITY



ALBAY RESEARCH
 CENTER



COCONUT PROCESSING
 TECHNOLOGIES

YOUNG COCONUT WATER



PRODUCT DESCRIPTION



Young Coconut water is the liquid endosperm obtained from a young coconut (6-9 months) which is pure, nutritious and wholesome natural beverage. The water is enclosed in a hard shell, with volume ranging from 200-750 ml, sterile and well-lined inside a 8 -10 mm layer of coconut meat. Coconut water is high in ionic nutrients (electrolytes) such as potassium, sodium, calcium, magnesium, chloride and phosphorus. It also contains sugar, in the form of glucose and fructose, Vitamin C, Vitamin B group and amino acids such as glutamic acid, arginine, aspartic acid and leucine.

USES AND HEALTH BENEFITS

The young coconut water can be used as a high-electrolyte beverage with low-medium glycemic index (54 ± 4) for hydration purposes. (PCA, *Development of a High Electrolyte, Low Glycemic Index Coco Water Drink* 2011).

The primary minerals or electrolytes in coconut water are essentially the same as those found in human blood. Thus, doctors have used it as an intravenous fluid for rehydration, injecting it directly into the patient's blood-stream.

Coconut water has a normalizing effect and gives the body a boost of energy to overcome a number of health-related conditions. It is effective in relieving dehydration, fatigue, constipation, and other digestive disturbances, kidney and bladder disorders, and vision problems such as glaucoma and cataract.

It also has an alkalizing effect on the body, helping to counteract or balance the effects of acidifying foods which are so common in our diets. Research shows that coconut water can improve blood circulation, lower elevated blood pressure, and reduce risk of heart attacks and strokes.

Source: Fife, B. Coconut water for Health and Healing. 2008

PRODUCTION PROCESS

The following are the basic steps in processing young coconut water:

1. Select young coconut, with no cracks, holes, or other defects.
2. Wash the nuts with potable water, followed by sanitizing with chlorinated water or bleach solution (1 tsp commercial chlorine bleach per liter of water).
3. Cut nuts and collect coconut water in clean stainless steel containers. Filter or strain the coconut water to remove impurities.
4. Fill in sanitized* bottles, seal and immediately cool to 4°C.
5. Store in coolers or refrigerator. The product will last at least 10 days under refrigerated condition. Distribute on ice.

Optional (buko juice drink**)

- ◆ Add up to 20% potable water to the mixture and sweeten with sugar according to taste.
- ◆ Scoop meat with spoon and wash with potable water to remove fiber, testa and other dirt.
- ◆ Mix buko meat and coconut water mixture.

*Sanitize bottles in diluted bleach water (1 tbsp. 5% bleach in 4.5L water) FAO, 2007

**Buko juice drink lasts up to 5 days under chilled condition. DOST, 2013

Types of chilled packaged products from young coconut water

1. **100% Buko juice:** unmodified natural aqueous liquid from young coconut, the appearance of which ranges from clear to slightly turbid
2. **Buko juice with tender solid endosperm:** buko juice with addition of tender solid endosperm from young coconut
3. **Buko juice drink:** buko juice with the addition of not more than 20% potable water, with or without sweetener, and with or without tender solid endosperm

Physico-chemical requirements of buko juice and buko juice drink

	BUKO JUICE	BUKO JUICE DRINK
Total Soluble Solids, °Brix	4.0-7.5	6.0-10.0
Total Titratable Acidity, % m/m	0.03-0.08	0.02-0.10
pH	4.6-5.1	4.30-6.25
Specific gravity	1.023-1.070	1.020-1.220
Potassium content	Not less 1,400	Not less than 1,100

Reference: Philippine National Standard (PNS) for Chilled Young Coconut Water, 2006

