Food Processing Workshop – Juice

1. Carrot Ginger Juice

Material:

- Screw press
- Scale
- Heating device and pots
- Slotted spoon
- Jugs graduated
- Cheese Cloth (sterilized)
- Heat stable gloves
- Sterilized bottles and bottle caps (40x250 ml, sterilized)
- Ice bath
- Colander
- Funnel (sterilized)

Extraction Method 1: Raw Ingredients	Extraction Method 2: Blanched Ingredients
4.5 kg Carrots raw, uncleaned	4.5 kg Carrots raw, uncleaned
225 g Ginger	225 g Ginger
Juice of 3 lemons	Juice of 3 lemons
Honey to taste	Honey to taste

Tasks

Determine the yield: Note the weight of raw material cleaned after washing going in the juicer and the weight leaving the juicer for both methods.

Extraction Method 1: Raw Ingredients		Extraction Method 2: Blanched Ingredients	
		Weight IN cleaned [kg]:	
Weight IN cleaned [kg]:		Weight IN blanched[kg]:	
Weight OUT		Weight OUT	
$Yield\ [\%] = \frac{OUT}{IN\ clean} x100\%$		$Yield\ [\%] = \frac{OUT}{IN\ blanched} x100\%$	
		$Yield\ [\%] = \frac{OUT}{IN\ cleaned} x100\%$	

Taste both juices after pressing and compare their taste.

Extraction Method 1: Raw Ingredients		Extraction Method 2: Blanched Ingredients	
Color		Color	
Smell		Smell	
Taste		Taste	

Methods:

Extraction Method 1: Raw Ingredients	Extraction Method 2: Blanched Ingredients
Sterilize the bottles, bottle caps, measuring jugs and funnel at 100 °C for 30 minutes or at 120 °C for 15 minutes	
Sort the raw material, wash and cut it in portions suitable for the juicer	Sort the raw material, wash and cut it in portions suitable for the juicer
Weigh the cleaned raw material (IN clean)	Weigh the cleaned raw material (IN clean)
Feed the carrot and ginger pieces through the juicer.	Blanch the cut carrots and ginger for 10 Minutes and transfer it into an ice bath for 2 Minutes and strain it thru the colander
Weigh the extracted juice (OUT)	Weigh the blanched raw material (IN blanched)
	Feed the carrot and ginger pieces through the juicer
	Weigh the extracted juice (OUT)
Taste the juice	
Pasteurize: transfer the remaining juice to a pot and heat up the juice to 85 °C and hold the temperature for 5 minutes (season to taste with honey)	
Remove foam from the surface with the slotted spoon	
Strain the juice thru three layers of cheese cloth and reheat to 85 °C	
Fill the juice into the bottles using the jugs and funnel or a pot with a tap (wear heat protective gloves)	
Close the bottles with low headspace (wear heat protective gloves)	
Let it cool at room temperature	
Store in the fridge at 4°C	
The product has a shelf life up to 4 weeks as the pH is above 4.5 (sterilization could enhance this up to a year but loses flavor and nutritional value)	

2. Berry Juice

Material:

- Para press (balloon press)
- Scale
- Heating device and pots
- Slotted spoon
- Jugs graduated
- Cheese Cloth (sterilized)
- Heat stable gloves
- Sterilized bottles and bottle caps (40x250 ml, sterilized)
- Funnel (sterilized)

Extraction Method 1: Frozen/Thawed	Extraction Method 2: Frozen/Thawed/Enzyme Treated
2.5 kg Berries thawed	2.5 kg Berries thawed
	2.5 g Pectinase (0.1 % W/W)

Tasks

Determine the yield: Note the weight of raw material going in the juicer and the weight leaving the juicer for both methods.

Extraction Method 1: Frozen/Thawed		Extraction Method 2: Enzyme Assisted	
Weight IN [kg]:		Weight IN [kg]:	
Weight OUT [kg]		Weight OUT [kg]	
$Yield\ [\%] = \frac{OUT}{IN} x100\%$		$Yield\ [\%] = \frac{OUT}{IN} x100\%$	

Methods:

Extraction Method 1: Frozen/Thawed	Extraction Method 2: Enzyme Assisted
Sterilize the bottles, bottle caps, measuring jugs and funnel at 100 °C for 30 minutes or at 120 °C for 15 minutes	
Weigh the raw material (IN)	Mash the berries slightly and add 0,1 % (W/W) of pectinase, incubate it for one hour at 55 °C. The pH value of the raw material shall have a natural pH between 3.0 and 4.5
Weigh the raw material (IN)	Weigh the raw material (IN)
Extract the juice	Extract the juice
Weigh the extracted juice (OUT)	Weigh the extracted juice (OUT)
Pasteurize: Transfer the juice to a pot and heat up the juice to 85 °C and hold the temperature for 5 minutes (season to taste with honey)	
Remove foam from the surface with the slotted spoon	
Strain the juice thru three layers of cheese cloth and reheat to 85 °C	
Fill the juice into the bottles using the jugs and funnel or a pot with a tap (wear heat protective gloves)	
Close the bottles with low headspace (wear heat protective gloves)	
Let it cool at room temperature	
Store the filled and sealed bottles in a cool, dark place	
The product has a shelf life up to one year without cooling as its pH is below 4.5 and it is pasteurized	

3. Apple Juice

Material:

- Centrifugal force juicer
- Scale
- Heating device and pots
- Slotted spoon
- Jugs graduated
- Cheese Cloth (sterilized)
- Heat stable gloves
- Sterilized bottles and bottle caps (40x250 ml, sterilized)
- Funnel (sterilized)
- 5 kg apples
- 5 g/l citric acid

Tasks

Determine the yield: Note the weight of raw material going in the juicer and the weight leaving the juicer for both methods.

Yield Apple Juice	
Weight IN clean[kg]:	
Weight OUT [kg]	
$Yield\ [\%] = \frac{OUT}{IN\ clean} x100\%$	

Taste the fresh juice

Fresh Apple Juice	
Color	
Smell	
Taste	

Methods:

Apple Juice
Sterilize the bottles, bottle caps, measuring jugs and funnel at 100 °C for 30 minutes or at 120 °C for 15 minutes
Sort the raw material, wash and cut it in portions suitable for the juicer
Weigh the cleaned raw material (IN clean)
Feed the carrot and ginger pieces through the juicer.
Weigh the extracted juice (OUT)
Taste the juice
Pasteurize: transfer the remaining juice to a pot and heat up the juice to 85 °C and hold the temperature for 5 minutes
Add 5 g per liter apple juice citric acid to enhance flavor and shelflife
Remove foam from the surface with the slotted spoon
Strain the juice thru three layers of cheese cloth and reheat to 85 °C
Fill the juice into the bottles using the jugs and funnel or a pot with a tap (wear heat protective gloves)
Close the bottles with low headspace (wear heat protective gloves)
Let it cool at room temperature
Store the filled and sealed bottles in a cool, dark place
The product has a shelf life up to one year without cooling as it is pasteurized and its pH value is below 4.5