

## Technical Sheet of Valorization of Cashew Apple Juice (*Anacardium Occidentale* L.) By Association with Passion Fruit Juice (*Paciflora Edulis*)

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**Abstract:** The sensory analysis of blend juice from cashew apple juice (*Anacardium Occidentale* L.) and passion juice (*Paciflora Edulis*) was conducted. Of the three proportions of mixture (v/v), the mixture C (90/10) seems best appreciated by the panelists. This study shows that cashew apple can be valued in juice with better acceptance if mixed with exotic fruit juices such as passion fruit.

**Keywords:** Cashew apple, juice, panelists, passion fruit, sensory analysis

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### I. INTRODUCTION

Several studies have been carried out on cashew apples in general, including physico-chemical characterization ([1], [2], [3]). More specifically, the apple of cashew nuts and apples of Côte d'Ivoire has also been the subject of several studies ([4], [5], [6]). However, the cashew apples of Cote d'Ivoire are not valued [7]. However, in the course of 2016, this country produced more than 625 000 T of cashew nuts (*Anacardium Occidentale* L.) [8], whose proportion of apples is destroyed to the detriment of the nut. Despite the richness of the juice from the cashew apples and all the beneficial effects, the cashew apples juice rejected because of its astringency. To improve consumer acceptance, this study proposes to mix the cashew apples juice with that of *Paciflora Edulis* f. *Flavicarpa* known under the pseudonym of "passion fruits". Indeed, the fruit of the passion is a fruit with a very acid pulp, an intense aroma and a pleasant flavor [9]. Different proportions of mixtures of the two juices were therefore submitted to a panel for sensory analysis in order to improve consumers' perception of cashew apples juice.

### II. MATERIAL AND METHODS

Cashew apples juice (Photo 1) and passion fruits (Photo 2) were extracted according to figures a and b. The different juices obtained (photographs 3 and 4) were stored in the refrigerator (Fiochetti, Mazzara, Italy) at 4 °C, for the various tests. The pH of the juice was determined using a pH meter by the method described by AOAC [10]. The titratable acidity of the juices was determined by the method described by Kimaryo et al. [11]. The soluble solids level (TSS or Brix degree) was determined by the Soyer et al. method [12]. The dry matter was determined by the method described by BIPEA [13]. The ash content of the juices was determined by the method of incineration at 550 °C. The density of the different juices was determined by introducing a densimeter into the sample at a temperature of 20 °C. The different mixtures (C, E and D) of the fruit juices are given in Table 1. The sensory analysis was carried out on the attributes such as color, odor, flavor, decantation of the juice and a more general acceptance according to the method described by Stone and Sidel [14] and applied more specifically to cashew juice by Talasila et al. [15]. A panel of 30 people was constituted for the analysis with a scale ranging from "extremely pleasant" (point 9) to "extremely unpleasant" (points 1).



Photographie 1: Yellow cashew apples



Photographie 2: Passion fruits

Activate Wi



Photographie 3 : Cashew apples juice



Photographie 4 : Passion fruits juice

Flowchart of juices

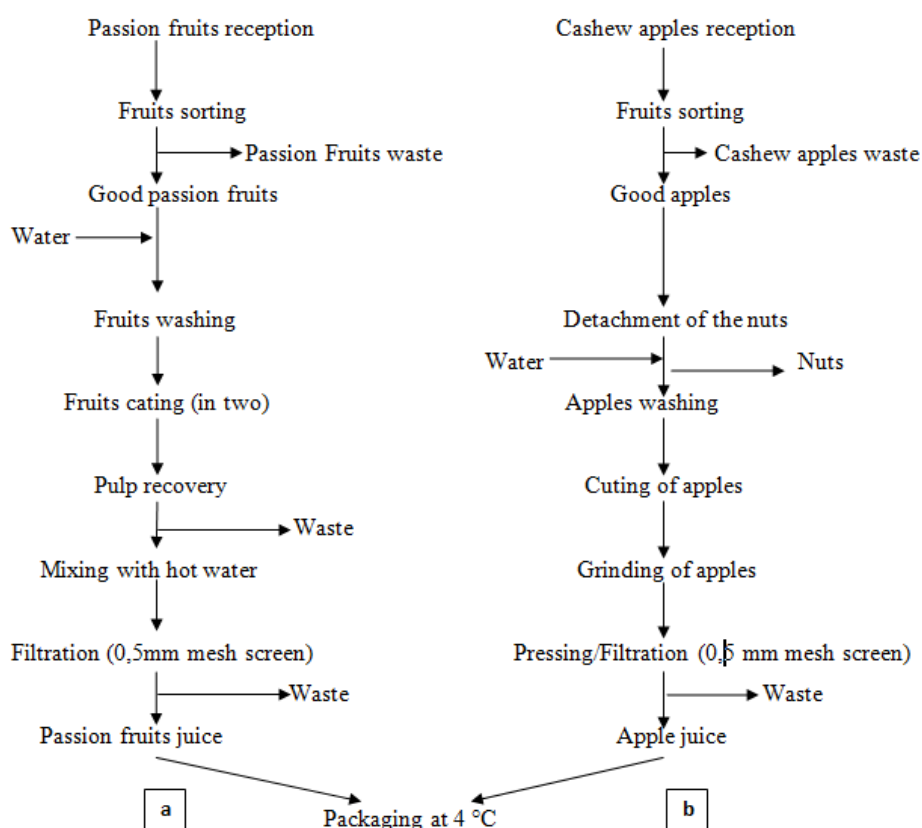


Figure 1: Flowcharts of juices production. a: Passion fruits, b : Cashew apples juice

**Tableau 1:** Blend of the cashew apples juice and passion fruits juice in different proportion

N°	Blend juice	Passion juice	Cashew apple juice	Total quantity
1	A	70 mL	30 mL	100 mL
2	B	80 mL	20 mL	100 mL
3	C	90 mL	10 mL	100 mL

### III. RESULTS AND DISCUSSION

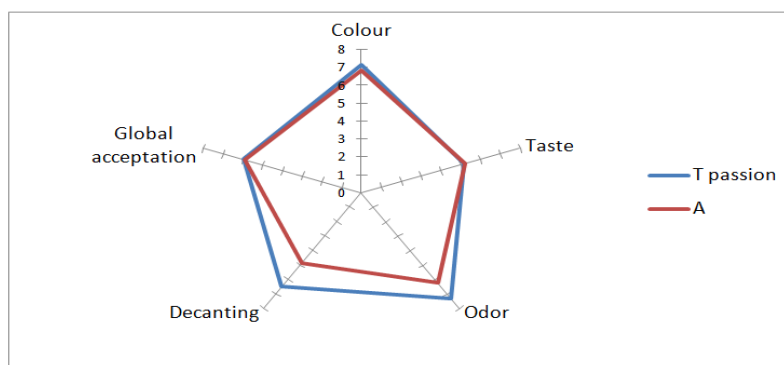
The physico-chemical characteristics of the two juices are summarized in Table 2. These characteristics show a similarity between these juices. This similarity seems to demonstrate a good ability of the two juices to mix.

**Tableau 2:** Physico-chemical composition of cashew apples juice and passion fruits juice

Parameter	Average (Cashew apple)	Average (passion fruit)

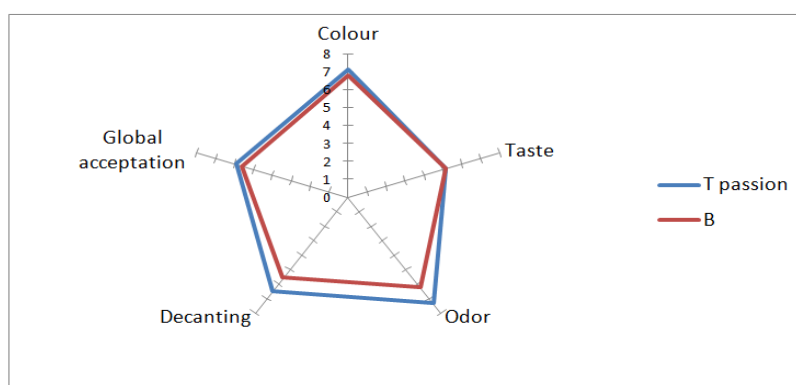
pH	4,20 ±0,00	3,14±0,02
Titration acidity (g lactic acid / l)	0,79±0,00	1,17 ± 0,01
Degré Brix (°B)	13,70 ±0,00	14,17±0,01
Indice of réfraction (RI)	1,35 ± 0,00	1,34 ± 0,00
Density	1,05 ± 0,00	1,60±0,00

Figure 2 gives the results of the comparison of the attributes of mixture A (mixture of cashew apple juice and passion juice 30-70 v / v in mL) with the passion juice control. Thus, attributes such as color, flavor (taste) and overall acceptance appear identical. On the other hand, with regard to attributes such as odor and decantation, the passion juice control (T passion) obtained the best scores with respectively 7.33 and 6.52.



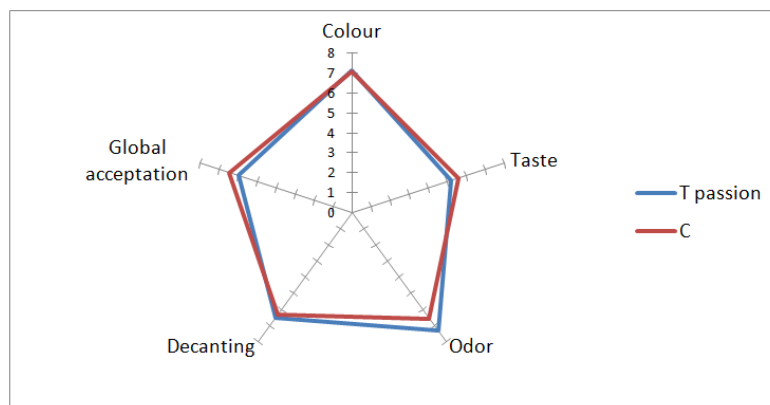
**Figure 2:** Comparison of blend attributes (A) cashew apple juice-passion fruit juice (30-70 v/v in mL) with the passion juice control

Figure 3 gives the results of the comparison of the attributes of mixture B (mixture of cashew apple juice and passion juice 20-80 v/v in mL) with the passion juice control. Thus, attributes such as color, flavor (taste) and overall acceptance compare favorably between mixture B and the control (T passion). On the other hand, with regard to attributes such as odor and decantation, the passion juice control obtained the best scores with respect to the mixture B.



**Figure 3:** Comparison of attributes of the mixture (B) cashew apple juice-passion fruit juice (20-80 v/v in mL) with the passion juice control

Figure 4 gives the results of the comparison of the attributes of the mixture C (mixture of cashew apple juice and passion juice 10-90 v/v in mL) with the passion juice control. Attributes such as color, flavor (taste), decantation and overall acceptance are identical. On the other hand, for the smell the witness of passion juice obtains the best score compared to the mixture C.



**Figure 4:** Comparison of attributes of the mixture (C) cashew apple juice-passion fruit juice (10-90 v/v in mL) with the passion juice control

#### IV. CONCLUSION

Mixtures with a variable proportion of passion fruit juice and cashew juice have improved the attributes of the resulting juices. Thus, with regard to the scores the juice of mixture C seems well appreciated by the panelists. The association of passion juice with cashew juice is therefore a good alternative for the valorization of cashew apple.

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