

Dehydrated orange snacks as a solution for orange surplus in Portugal

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Introduction

World production is about 75 million tones



Portuguese orange production was about 363 thousand tones

Drop of price (War in Europe reshaping trade)



Can this orange surplus be used?

Must of orange is eaten fresh or processed in juice



When dehydrated is used mostly as a powder

Creating a ready-to-eat snack with multi-purpose



What are its worth?

Product design

Dehydration (60°C) of the fruit pulp to obtain a multi-purpose product ($\leq 4\%$ of humidity) as seen in the following figure.

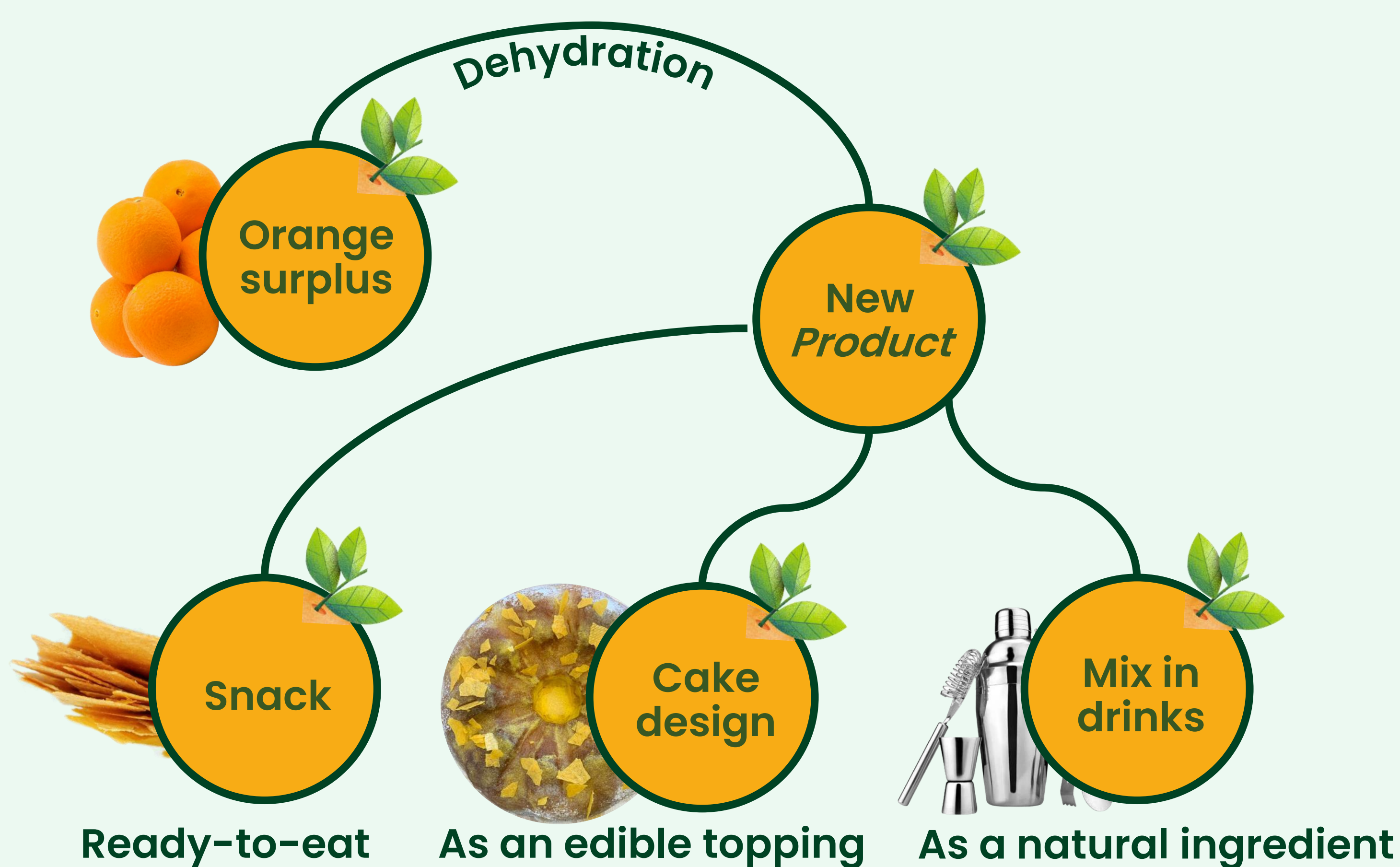


Fig 1 – Problem-solving by creating ready-to-eat multi-purpose snacks.

Nutritional value

Although fibre is normally lost in the juice production process, in this snack the value actually increases (78.5%) from 0.44g/100g to 2.55g/100g.

Tab1 – Nutritional characterization of the final product.

	100g	RDA*
Energy (Kcal)	372.98±0.34	19%
Energy (Kj)	1582.23±1.40	19%
Protein (g)	5.71±0.05	11%
Fibre (g)	2.55±0.01	10%
Total Carbohydrates (g)	85.08±0.01	34%
of wich sugars (g)	79.47±0.09	88%
Fat (g)	0.53±0.02	1%
of wich saturated (g)	0.22±0.01	1%
Salt (g)	0.02±0.00	0%
Humidity (%)	96.65±0.04	-
Ashes (g)	2.79±0.01	-

Data expressed as mean (\pm standard deviation)

RDA- Recommended Daily Allowance for an average adult, i.e. 2000 kcal or 8400 kj

Results

With a ratio of 64% female – 36% male, an average age of 37 years, 95.5% of consumers would buy this product if available.

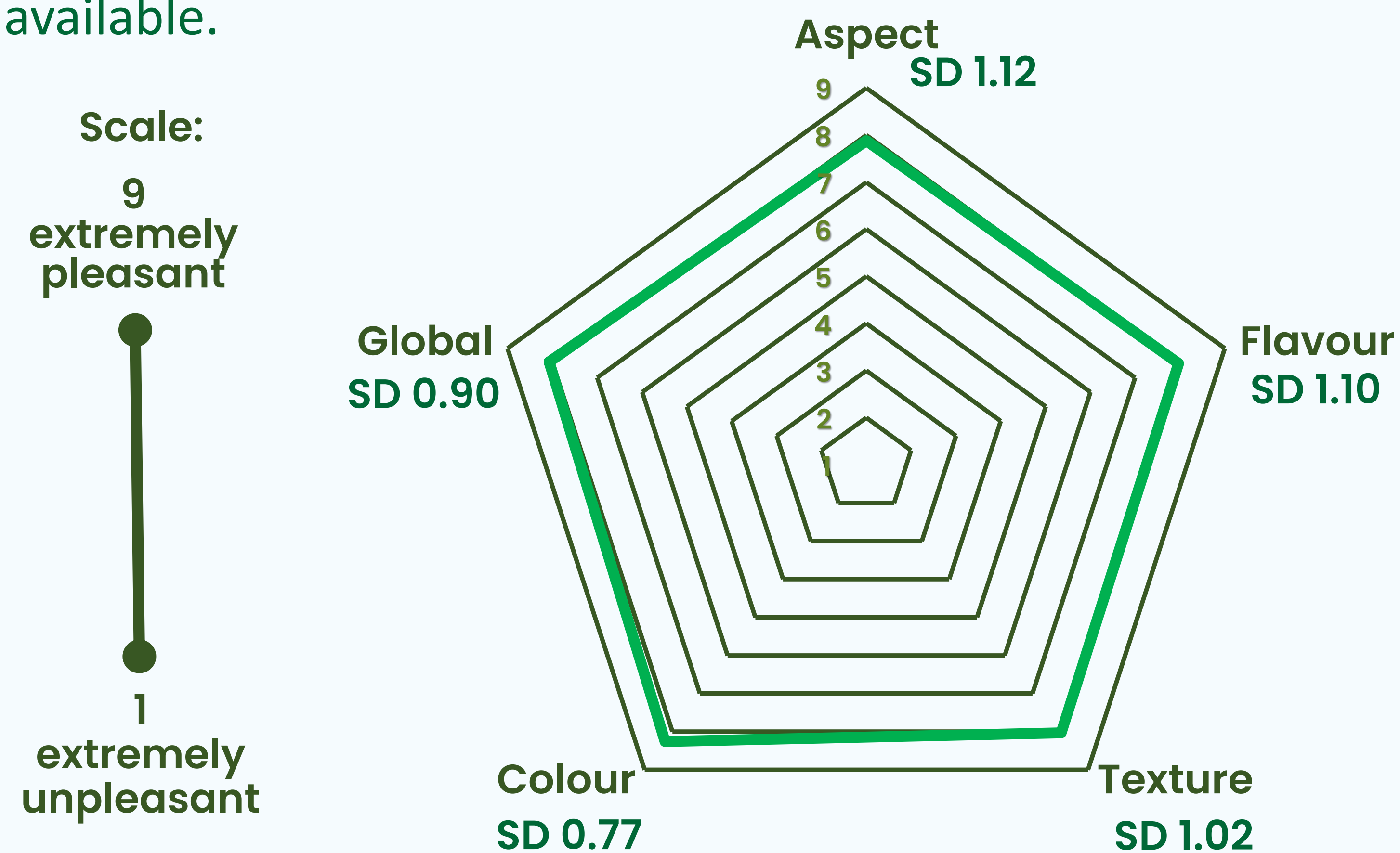


Fig 3 – Sensory evaluation of the orange snack.

The low content of a_w (free water available) limits enzymatic and chemical degradation reactions, as well as microbial development.



Fig 4 – Benefits of the product (a_w 0.238)

Final considerations

- Multi-purpose food allows new market opportunities;
- Free of gluten and preservatives;
- Only naturally occurring sugars from fruit;
- Kid friendly: shape and texture;
- Low fat and low saturated fat;
- No salt;
- Vegan.