



Natural Antioxidant Sugarcane Extract & Application

May 2024



Agro-Industry



Bioethanol



Energy



Logistics



Property
& Leisure



Retail &
Brands

KONS@NET™
You deserve the best

In collaboration with



omnicane

Integrating Energies



KONSONET in brief

KONSONETTM
You deserve the best



10 years in activity in Lithuania



KAUNAS CHAMBER
OF COMMERCE,
INDUSTRY AND CRAFTS

Member of Kaunas Chamber of Commerce, Industry and Crafts



Representative of Mauritius Sugar in Baltic States



Brand owner of Dodo Sugar

Largest range of unrefined cane sugar from Mauritius in Baltic States



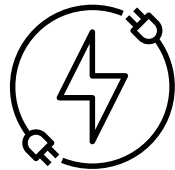
Trading of cocoa products, oats and Lecithin products



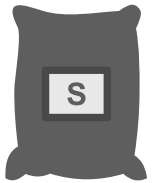
Omniscane at a glance



180 Million Turnover (€)



700 GWh Electricity
exported to national grid



200,000 Tonnes
Refined Sugar production



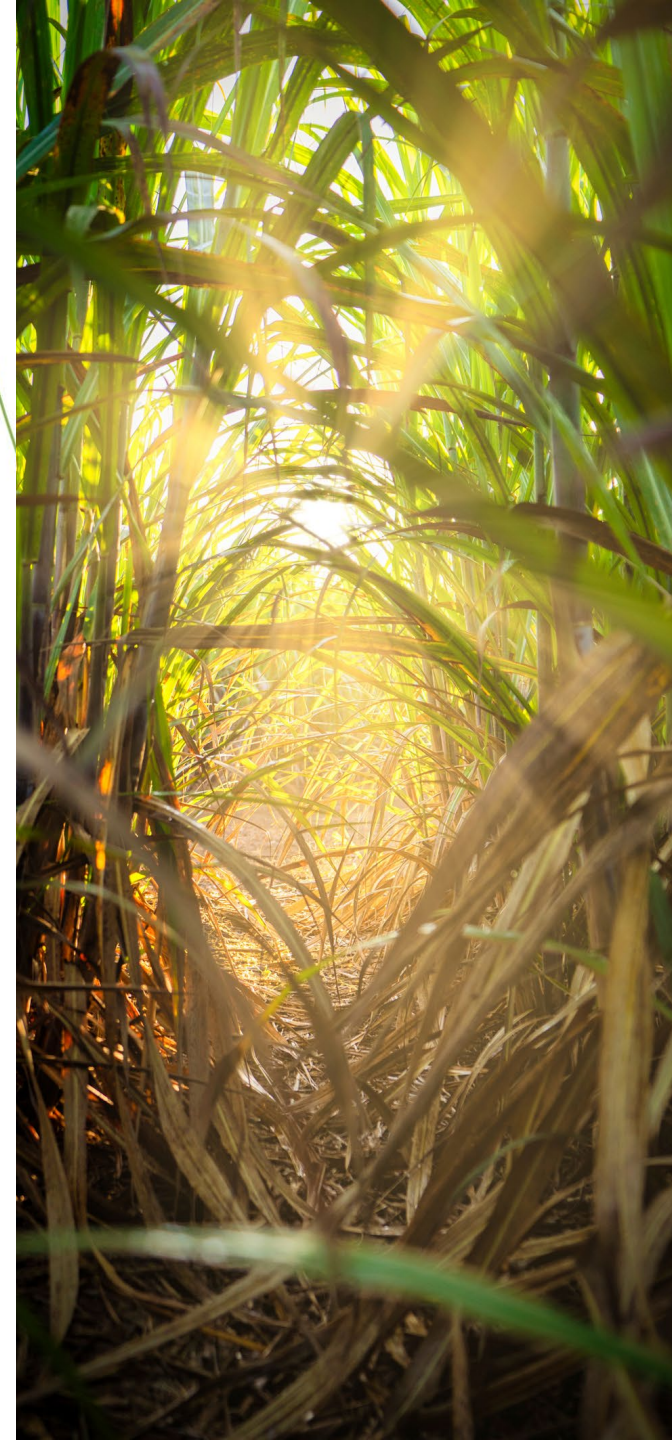
26 GWh Electricity exported
to Rwanda grid



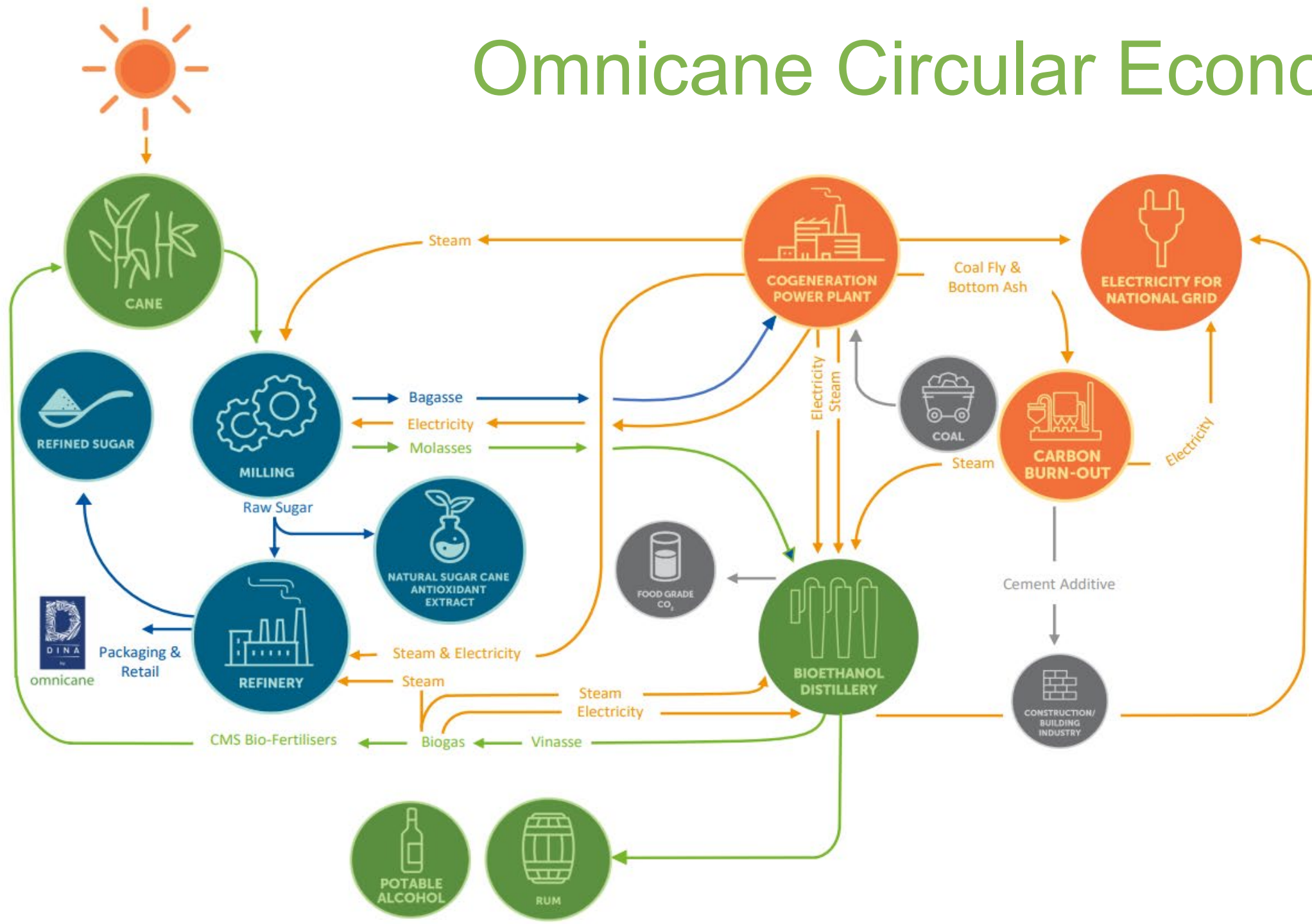
14 millions litres
Bioethanol production



1,216 Employees



Omnicanne Circular Economy



Our certifications



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Natural Antioxidant Sugarcane Extract

Antioxidant Extraction Plant

- **Ground-breaking innovation using a patented process**
- **Plant operational since October 2023**

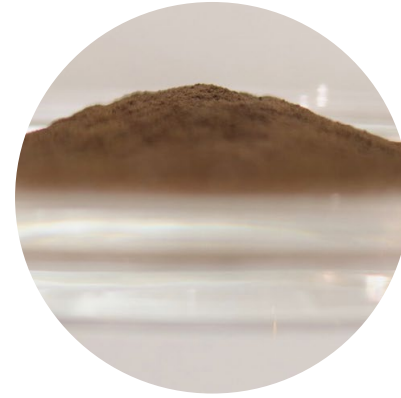


Composition

**Patented
Process**



**Sugarcane
Juice**



Active components:

1. Polyphenol rich:

- Free-Phenolic acids
- Free Flavanols and proanthocyanins

2. Carotenoids

Measuring Antioxidant Activity

- The **European Institute of Antioxidants (IEA)** offers a quick and direct method for evaluating the total antioxidant power through the **PAOT-Liquid® technology**
 - Classical methods to measure antioxidant are DPPH, TEAC (ABTS), ORAC, FRAP
- The total antioxidant power of a product is expressed in **PAOT Score®** (/ l or / g of the product)
 - To select products that provide the best antioxidant protection.
- **PAOT® index** is used to compare products of same range. There are variable scales that IEA proposes such as for basic ingredients (0-1000) or manufactured products (0-100)

• PAOT® technology is a French innovation that allows, for the very first time, to obtain a reliable measurement of the concentration of antioxidants and free radicals in the cells of the skin, the body, plants, foods and supplements food, cosmetic creams, etc

PAOT Label



PAOT LABEL

- Product tested successfully
 - PAOT* Level score: >2000/g
 - Very Effective Antioxidant product
- Certificate expected by May 2024

Product Properties

Chemical Properties

Components	Description
pH at 25°C	5.0 – 9.0
Density at 25°C	394 kg/m ³
Moisture (%),Max	5%
Polyphenol content [%], Gallic acid equivalent, Min	15%
Sulphur Dioxide (ppm), Max	4

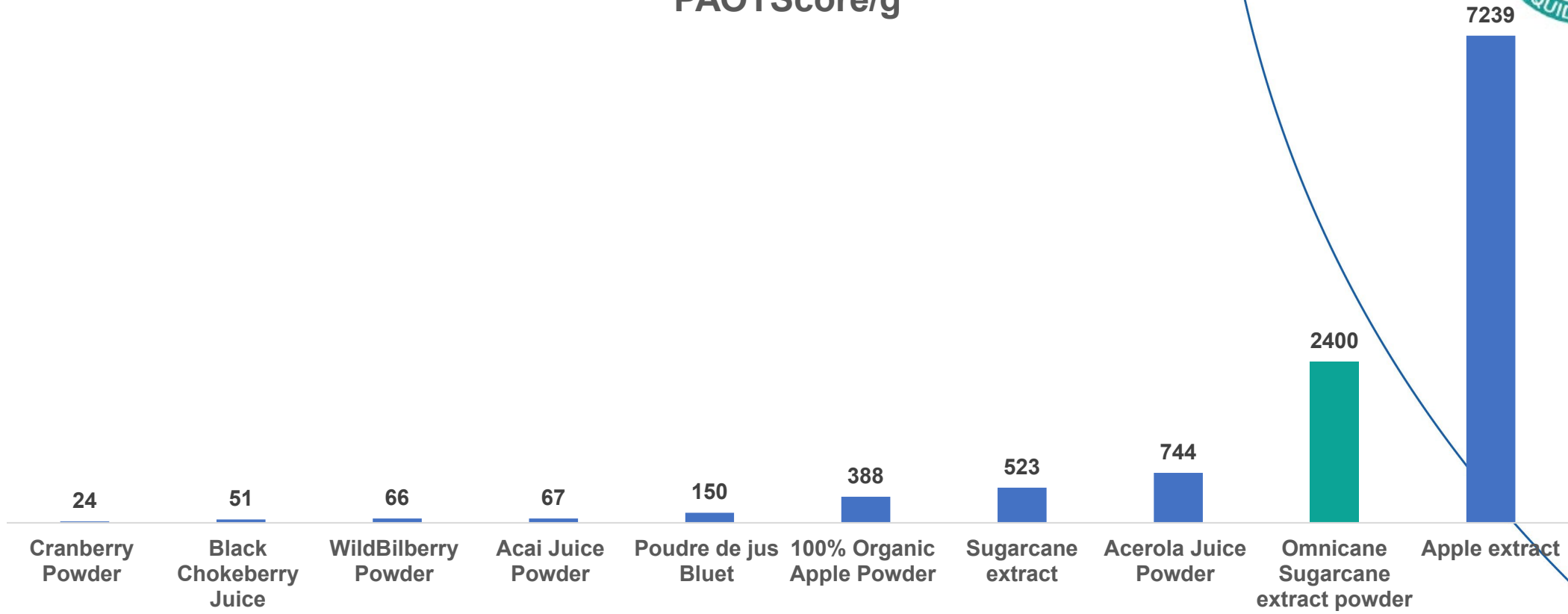
Organoleptic Properties

Chemical properties	Description
Appearance	Reddish brown to dark brown powder
Texture	Free flowing powder
Smell Aroma	Molasses
Flavour	Slightly Bitter

Note: Sugarcane extract is currently under analysis and some information are not currently available. Recommended dosage shall be communicated after further testing. Product properties values are not final and might be subject to changes.

Antioxidant Power Comparison

PAOTScore/g



PAOT Ingredient Scale: PAOT Score/g

< 250
Product not
labelled

600-999
Effective
product

> 1000 Very effective product

> 6000 Standard molecules

In vitro Study on human retinal cells by European Institute of Antioxidant

Results:

- Prevents the toxicity of 7KC responsible for cardiovascular diseases, Alzheimer's disease, eye diseases (cataract, age-related macular degeneration).
- Strongly attenuates overproduction of ROS and consequently cell death (ARPE 19 Cells).
- Prevents the drop in mitochondrial transmembrane potential which can be the cause of other major diseases such as Parkinson's disease and sarcopenia.
- Normalises the production of enzymes (GPx and SOD) to fight overproduction of reactive oxygen species.

Note:

7 KC: 7-ketocholesterol

ARPE-19: Retinal pigment epithelia (RPE) cell line derived from the normal eyes

ROS: Reactive oxygen species

GPx: glutathione peroxidase

SOD: superoxide dismutase

In vitro Study on human retinal cells by European Institute of Antioxidant

Conclusion:

- The cell biology study has shown that polyphenols present in our extract, in particular flavonoids and phenolic acids, could have beneficial effects on human health by acting as antioxidants and protecting cells against oxidative stress through the *hormesis phenomenon**

* Definition:

Hormesis has been recognized to be an adaptive mechanism by which mild stressors can potentiate the protective capacity of the host, while those at excessive levels are harmful or lethal ([Murakami, 2022](#))

In vitro Study on CACO2 intestinal cells by European Institute of Antioxidant

Results:

- Protection of intestinal barrier : Improvement of digestive health and optimal absorption of nutrients.
- Strong antioxidant effect: Protects against oxidative stress and support cellular health
- Safe use: The extract can be safely used as CACO2 cells are not negatively impacted.

Note:

CACO2 cells: Epithelial cells isolated from colon tissue

In vitro Study on CACO2 intestinal cells by European Institute of Antioxidant

Conclusion:

- **The study has shown that extract is safe for intestinal cells and has beneficial effects on human digestive health by protecting the intestinal lining against oxidative stress and improving nutrient absorption**

Potential Application



Food & Beverages



Nutraceuticals



Cosmetics

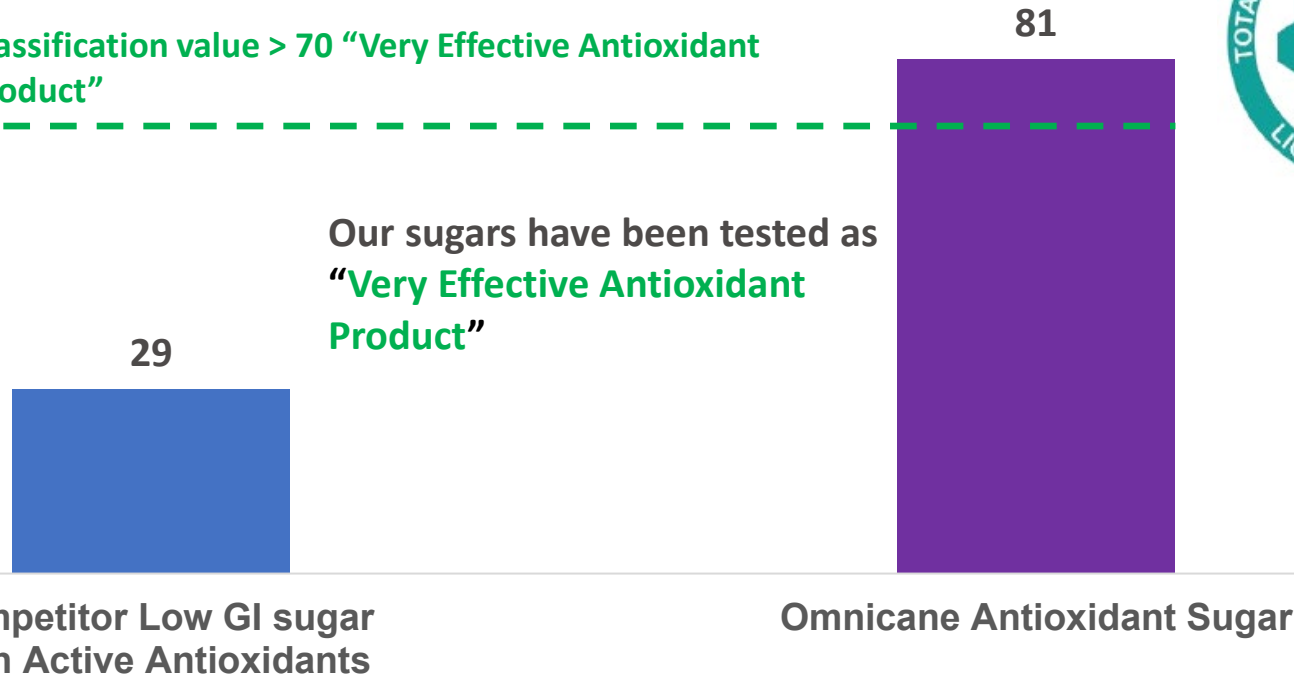
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Application – Food & Beverages

Application – Food & Beverages

Sugar: PAOT Score/g

Classification value > 70 “Very Effective Antioxidant Product”



PAOT Food Scale: PAOT Score/g

< 45 Possible presence of oxidant

50 to 69 Weakly to Moderately Effective Product

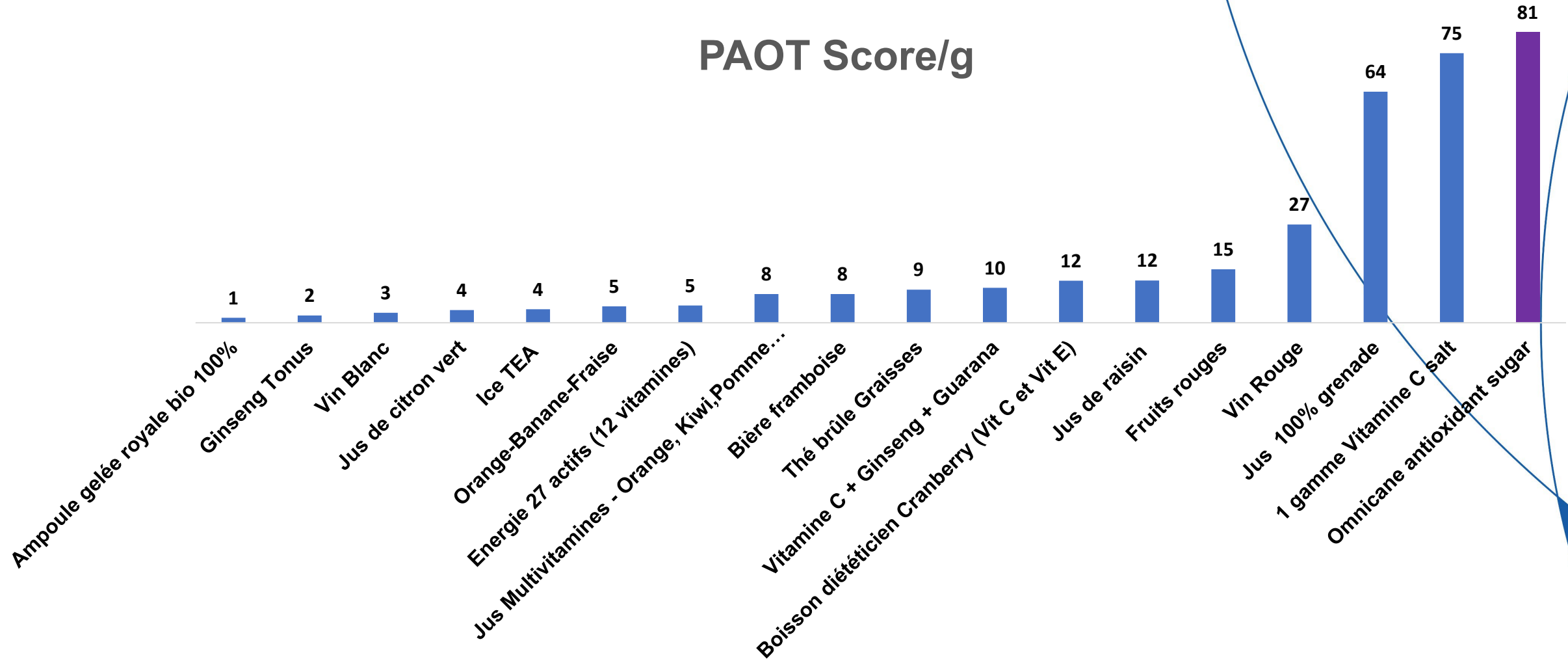
> 70 Very Effective Product


Note:

An application of approximately 1% by weight to a specific product is expected to develop a product with very effective antioxidant properties.

Comparison to 'everyday life' food

PAOT Score/g



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Application – Cosmetics

Cosmetics – PAOT analysis



Face cream formulation

Demineralised water

Sugarcane extract

Miglyol 812

Tween 80

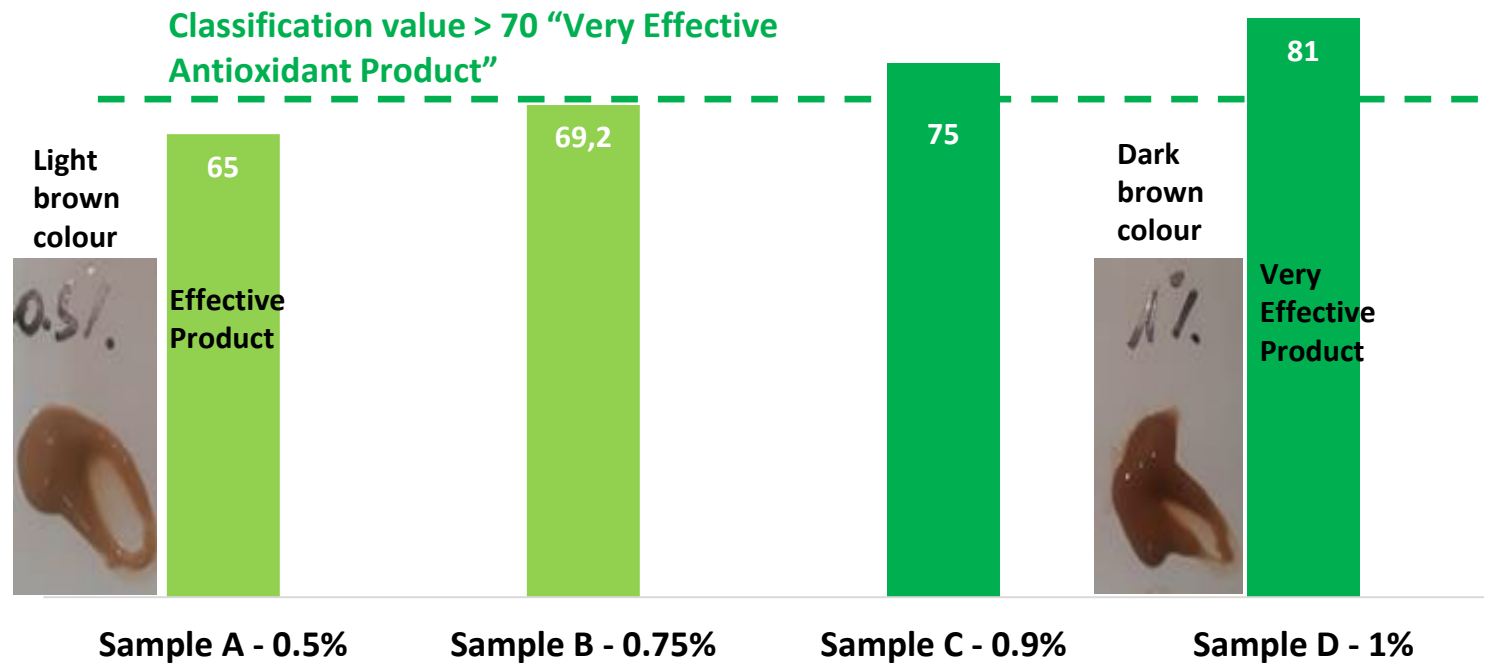
Xanthan

Potassium sorbate

Na+benzoate

Lactic acid solution 5.5%

PAOT score/g of product



PAOT Cosmetic Scale: PAOT Score/g



Cosmetics – Aging test

Aging test							
		Ambient temperature		Oven 50°C		Transportation	
Dosage	Days	pH	Stability	pH	Stability	pH	Stability
0.50%	D 0	5.99	Stable				
	D+ 1	5.77	Stable	5.6	Stable	5.05	Stable
1%	D 0	5.12	Stable				
	D+ 1	5.87	Stable	5.43	Stable shiny	5.39	1 drop of oil

➤ Stability is good and formulation is feasible

In situ Study on the antioxidant effectiveness and anti-aging efficacy of Sugarcane Extract after application during 4 weeks on 50 female healthy volunteers.

Results:

- **Biological age:** The average skin age rejuvenation of the test group was about 4 years with noticeable improvement in skin appearance. Individually, the cream slowed down skin ageing by 7%.
- **Hydration:** Notable improvement in skin hydration
- **Skin Colour:** Significant improvement in skin colour in terms of whitening and brightness after 8hrs
- **Pigmentation:** A slight positive effect in the reduction of skin spots, making the skin more even
- **Elasticity:** Slight improvement on for skin elasticity
- **Skin Texture:** No significant effect on skin texture

In situ Study on the antioxidant effectiveness and anti-aging efficacy of Sugarcane Extract after application during 4 weeks on 50 female healthy volunteers.

Conclusion:

- **The Cream containing the sugarcane extract effectively increased the antioxidant capacity of the skin over a 30-day period. The majority of volunteers showed significant improvements in their skin's PAOT scores, suggesting enhanced skin health and antioxidant protection.**
- **The product can be labeled (PAOT Gold ® label according to PAOT Skin Scale®), to certify its antioxidant efficiency as well as the bioavailability.**



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Key Takeaways

Key Points

- Rich in antioxidant : A PAOT score of >2000 shows high antioxidant activity and content that is beneficial for health
- Source of Polyphenols: Contains a min of 15% polyphenol content of high activity
- Taninns and carotenoids: Various health benefits according to research
- No gluten or lactose: Can be accepted by people with specifics diets
- Low in fats and sugars
- Contains minerals, proteins and fibres



Thank you