



PROLIFIC

Upcycled materials from agro-industrial side streams in cosmetics

PROLIFIC Final Dissemination Event

11 October 2022, Bologna

Dr Georgios Tsatsos

COSMETIC



What is “upcycling”?

The process of transforming by-products, waste materials or discarded objects into new materials or products, that will result in something of **greater value** than the original.



UPCYCLING



RECYCLING



DOWNCYCLING

Commercial products



Companies	# of upcycled products
ACTYLIS	1
Ashland	1
COSMACT	1
DKSH North America, Inc.	2
Dow Chemical - Home and Personal Care	1
IFF's Health & Biosciences	3
JRS - J. Rettenmaier & Söhne GmbH & Co. KG	1
Kaffe Bueno	2
Laboratoires Expanscience	10
Lucas Meyer Cosmetics	3
Mibelle AG Biochemistry	2
NATUROCHIM S.A.S.	3
NOF CORPORATION	6
Provital	1
Rahn USA Corp.	1
SEIWA KASEI CO., LTD.	16
SEPPIC	1
SurfactGreen	2
Symrise	2
The Garden of Naturalsolution Co., Ltd.	1
The Innovation Company®	8
Univar Solutions	1
Total	69

Search with the keyword “upcycled”
in Prospector database 8/10/2022
www.ulprospector.com



Sourcing



Starting material

Avocado

Apples

Pumpkin

Avocado

Sugar beets

Wood

Fish scale

Sugar beets

Grapes

Coffee silverskin

Coffee seed

Oat straw

Olives

Birch Sap

Pecan nutshell

Chemistry

Peptides

Sugars

Polyphenols

Lipids, polyphenols

Betaine

Sugar

Peptides

Sugar

Polyphenols

Lipids, polyphenols

Lignocellulose

Lignocellulose

Squalane

Sugars

Polyphenols

Starting material

Citrus tachibana peel

Lupine seeds

Mulberry root

Citrus peel

Natto Gum

Silk

Maca leaves

Passionfruit seeds

Sugar beet and fatty alcohol from Rapeseed

Plum kernel almonds

Kaolin, Modified Corn

Starch

Citrus aurantifolia

Bilberry

Chemistry

Polyphenols

Lipids, carotenoids

Flavonoids

Flavonoids

Polymer

Proteins

Polyphenols

Lipids, polyphenols

Surfactant

Oil

Powder

Flavonoids

polyphenols



PROLIFIC



Legumes

Protein short
peptides

Surfactants

Mushrooms

Chitosan

Antimicrobial
Film former

Coffee

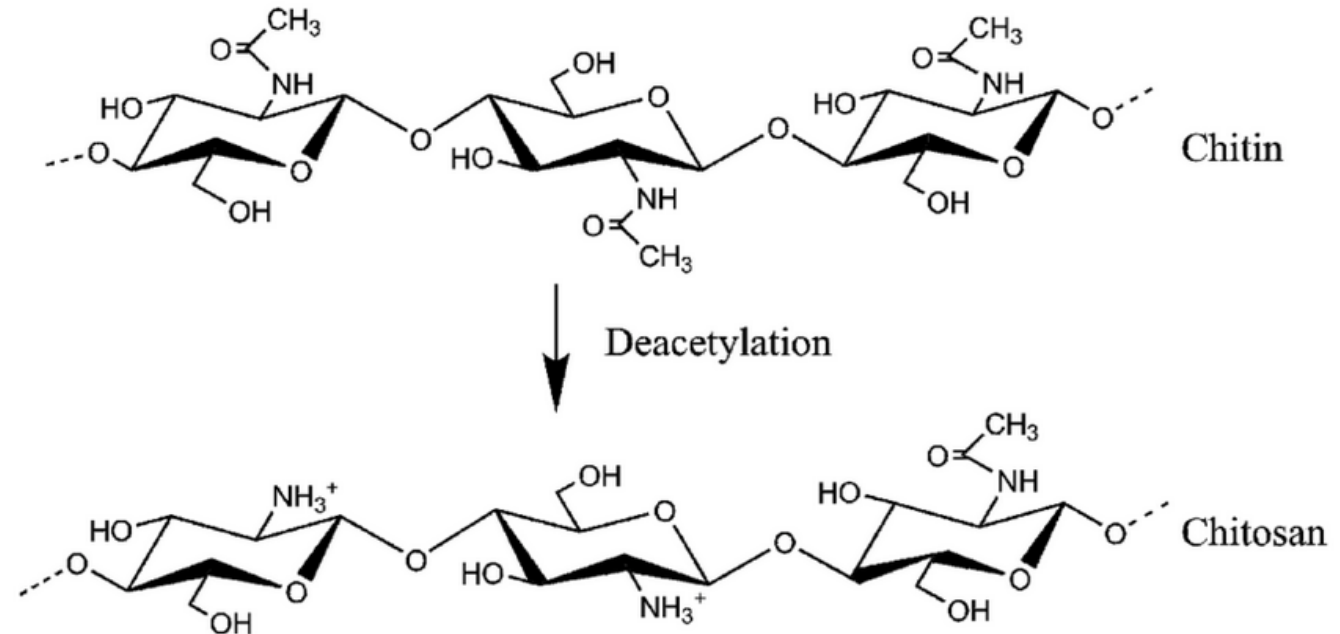
Polyphenols

Antioxidant



Toothpaste

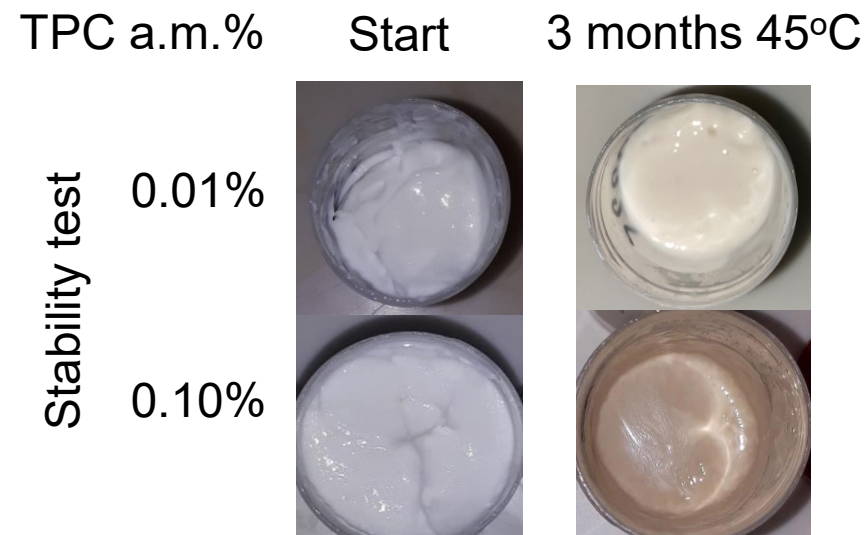
- Extract 16% chitosan
- MIC 0.3% a.m.
- Solubility challenge pKb 6.1
- Cationic – formulation
- Prototype



Cream

- Subcritical water extraction and Ultrasound >20 % TPC
- Anti-oxidant activity comparable to ascorbic acid
- Anti-elastase ~20% inhibition
- Anti-collagenase >90% inhibition

- Stability challenge
- Prototype



Thank you for your attention

g.tsatsos@cosmetic.com.gr
www.cosmetic.com.gr

www.prolific-project.eu



Horizon 2020
European Union Funding
for Research & Innovation

PROLIFIC has received funding from the Bio Based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 790157.