Институт по криобиология
и хранителни технологии

Природосъобразни решения за хранителни опаковки

Как да създадем *START UP* ?

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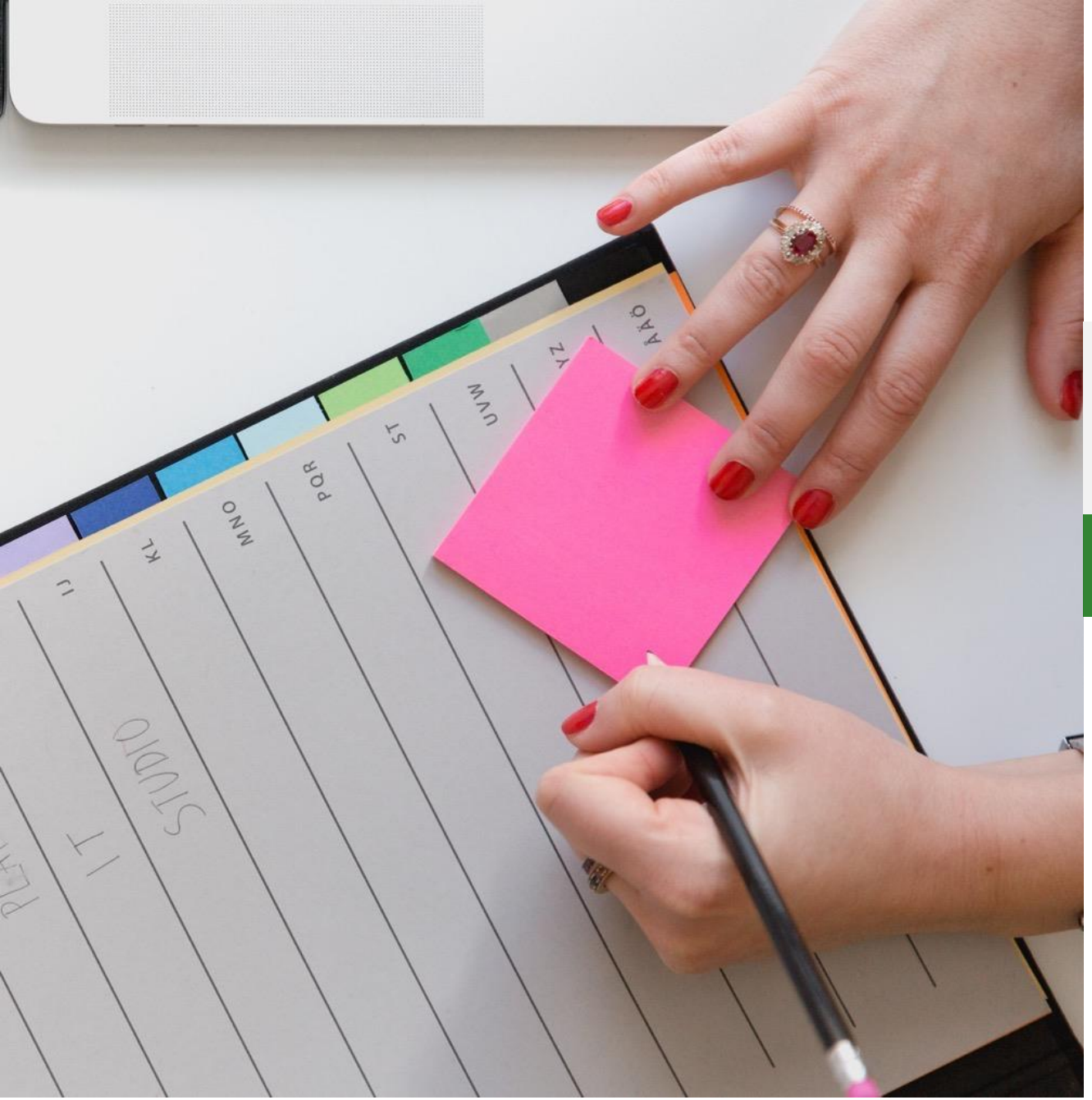
WWF PANDA LABS

Защо е необходимо ?

Нова технология, огромен потенциал за развитие

Предимства:

- Възможност за участие в кръговата икономика.
- Създаване на природосъобразен бизнес.
- Използване на земеделски суровини за производство на биоразградима пластмаса.
- Използване на нови източници на органични суровини.
- Създаване на иновативни продукти и технологии.
- Намаляване на CO_2 – отпечатък.



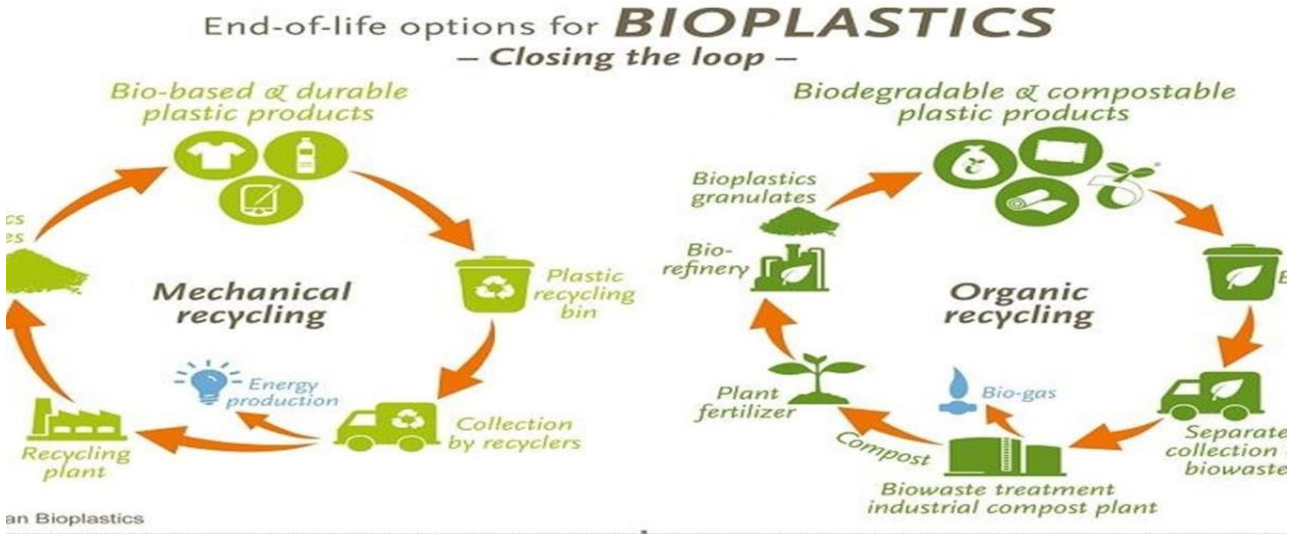
Какво трябва да направим?

Предварително проучване, избор на технология, местонахождение

Първи стъпки:

- Да си съставим план за действие.
- Да проучим сегашното състояние на бизнеса с опаковки.
- Да изберем продуктовата ниша.
- Да изберем подходяща технология.
- Да изберем мястото където ще позиционираме нашето производство.
- Да стартираме.

Market	Biodegradable Plastics Market
Biodegradable Plastics Market Size 2021	USD 4,345 Million
Biodegradable Plastics Market Forecast 2030	USD 12,915 Million
Biodegradable Plastics Market CAGR During 2022 - 2030	13.1%
Biodegradable Plastics Market Analysis Period	2018 - 2030
Biodegradable Plastics Market Base Year	2021
Biodegradable Plastics Market Forecast Data	2022 - 2030
Segments Covered	By Type, By End-Use, And By Geography
Biodegradable Plastics Market Regional Scope	North America, Europe, Asia Pacific, Latin America, and Middle East & Africa
Key Companies Profiled	Biome Technologies Plc, Cargill Incorporated, Plantic Technologies Limited, Futerro, Novamont SpA, NatureWorks LLC, Eastman Chemical Company, Danimer Scientific, Trineso, and BASF SE.
Report Coverage	Market Trends, Drivers, Restraints, Competitive Analysis, Player Profiling, Regulation Analysis



Опаковките към днешна дата

По света

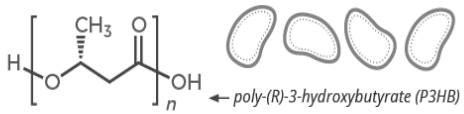
THE CHEMISTRY OF BIODEGRADABLE PLASTICS

COMMON BIOPOLYMERS & SOURCES

POLYLACTIC ACID (PLA)

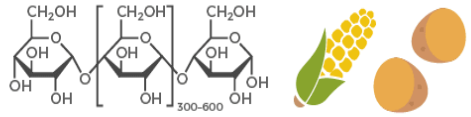
Obtained from fermented plant starch from corn, cassava, sugar cane or sugar beet.

POLYHYDROXYALKANOATES (PHAs)



Extracted from bacteria, which produce it via the fermentation of sugar or lipids.

THERMOPLASTIC STARCHES (TPS)



Starches from plant materials are heated with water, then mixed with plasticisers or other polymers.

EVERYDAY USES OF BIOPOLYMERS

Biodegradable coffee cups are paper cups with a PLA lining to make the paper waterproof.

PLA has the second largest production volume of any biopolymer (behind TPS). It is also used in plastic films, bottles, and food containers.

PLA and TPS both find use in the manufacture of plastic cutlery that's biodegradable.

TPS is also used in food waste bags and some magazine wrappers. PHAs have fewer uses, but have medical uses such as in surgical sutures.

ADVANTAGES AND DISADVANTAGES

GLOBAL PLASTIC PRODUCTION

Use of bioplastics is increasing, but they still account for less than 1% of the global plastics market (as of 2018).

CONDITIONS FOR BIODEGRADING

Compostable plastics need specific conditions to break down – and take much longer to do so completely if they go to landfill instead of being recycled. However, they still break down faster than conventional plastics.

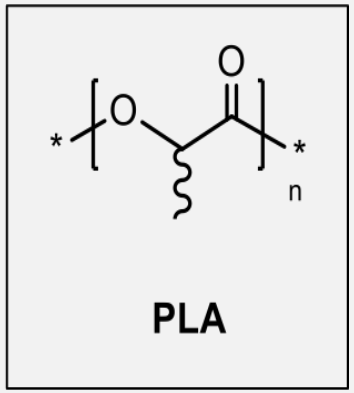
Biodegradable plastics are more expensive than plastics derived from fossil fuels on weight basis, and require land to grow raw materials. However, the greenhouse gas emissions associated with their production are lower.

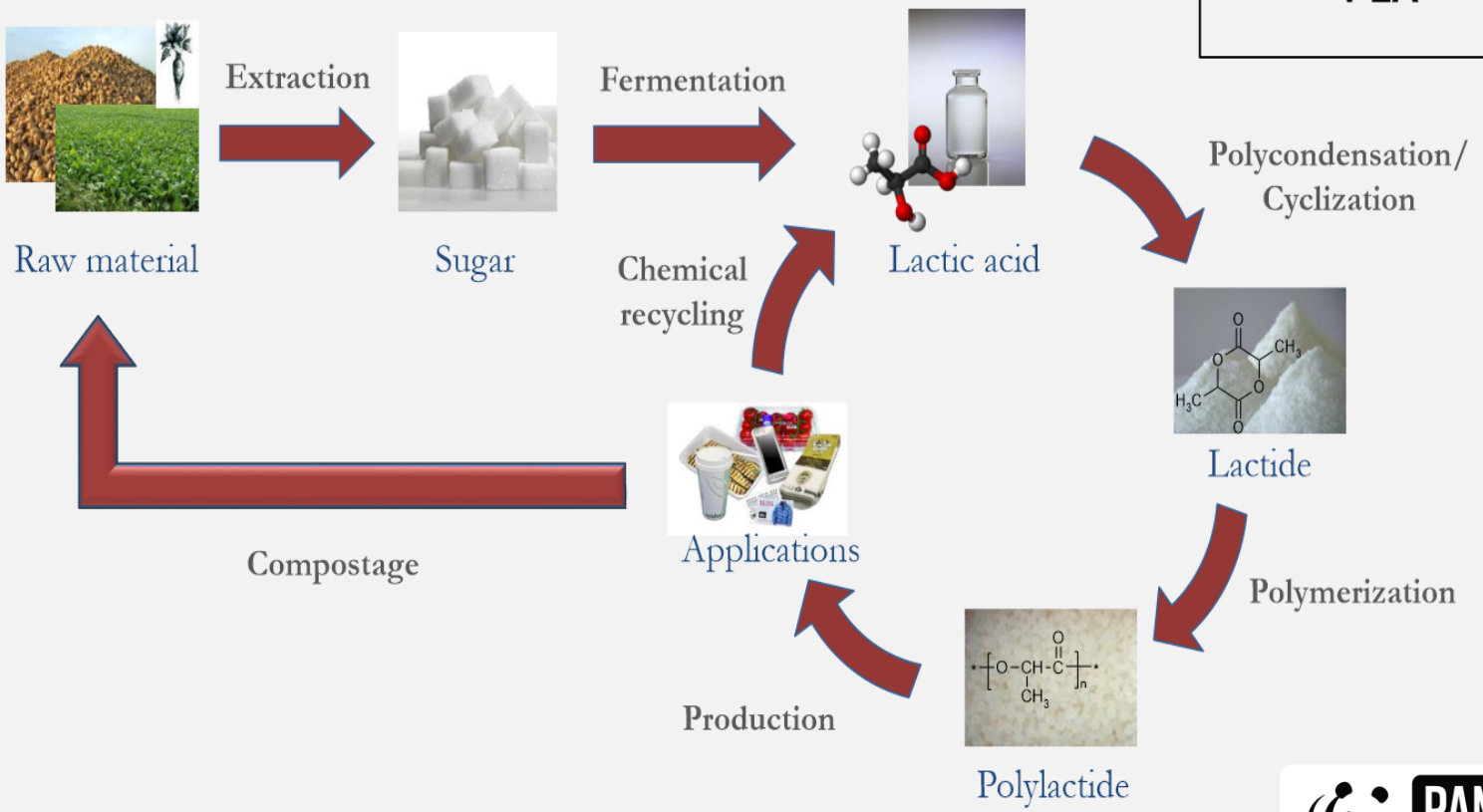
Избор на технология

Poly(lactic acid) (PLA), Polysaccharides (starch), Other polyesters (PCL, PBAT, PBS, PHA,...)

Poly(lactic acid) (PLA)

PLA is the most representative biodegradable and bio-based polymer on the market





Derived from sugar beet, but also from agricultural wastes

Applications of PLA - based materials

Избор на технология

Industrial realm of PLA-based materials

Source : D. Platt, "*Biodegradable Polymers Market Report*", Smithers Rapra Ltd., 2006

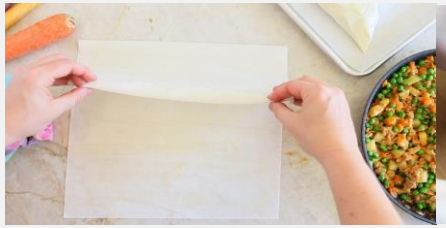
Long-term applications for PLA-based materials

Избор на технология

Poly(lactic acid) (PLA)

Ядлива растителна хартия

- Използване на източници богати на нишисте





Измиване, смилане и обезаразяване

→ Хомогенизиране → Добавка на пластивикатор и омрежител → Разстилане и Валцоване → Изсушаване

→ Смилане на пюре → Разтилане на тънък слой → Валцоване → Изсушаване



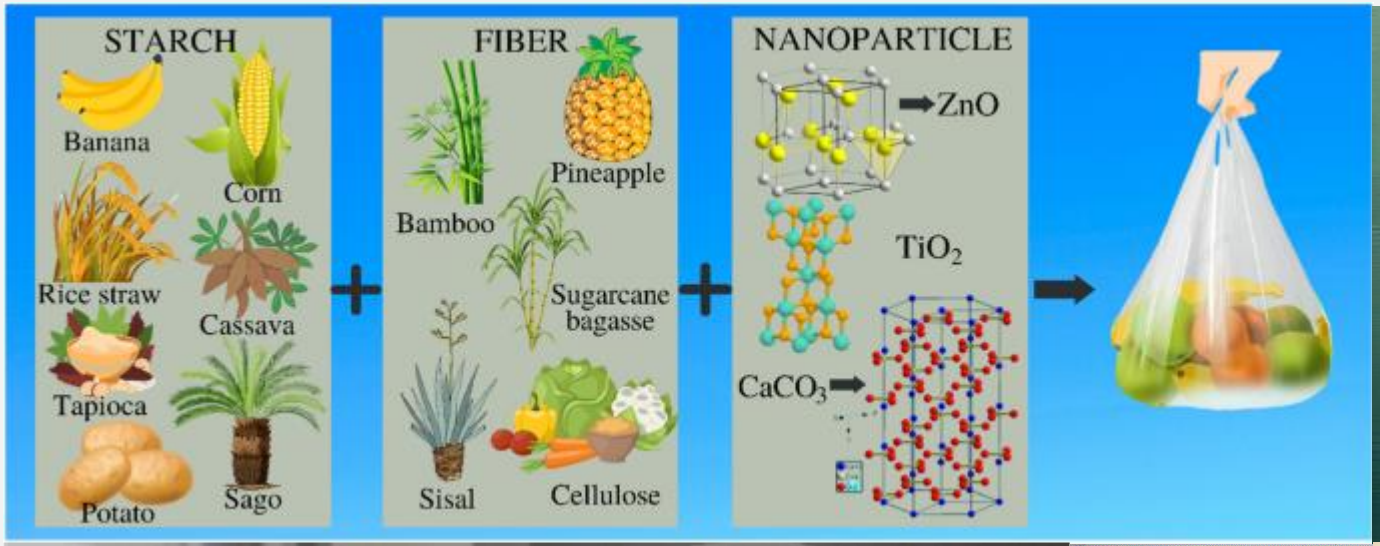


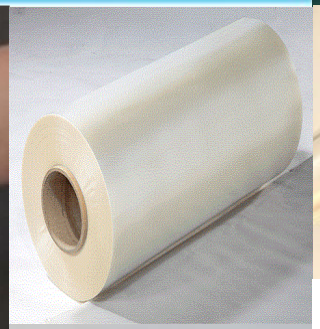
Избор на технология

Polysaccharides (starch)

Термопластичен опаковъчен филм от нишесте

- Използване на източници богати на нишисте



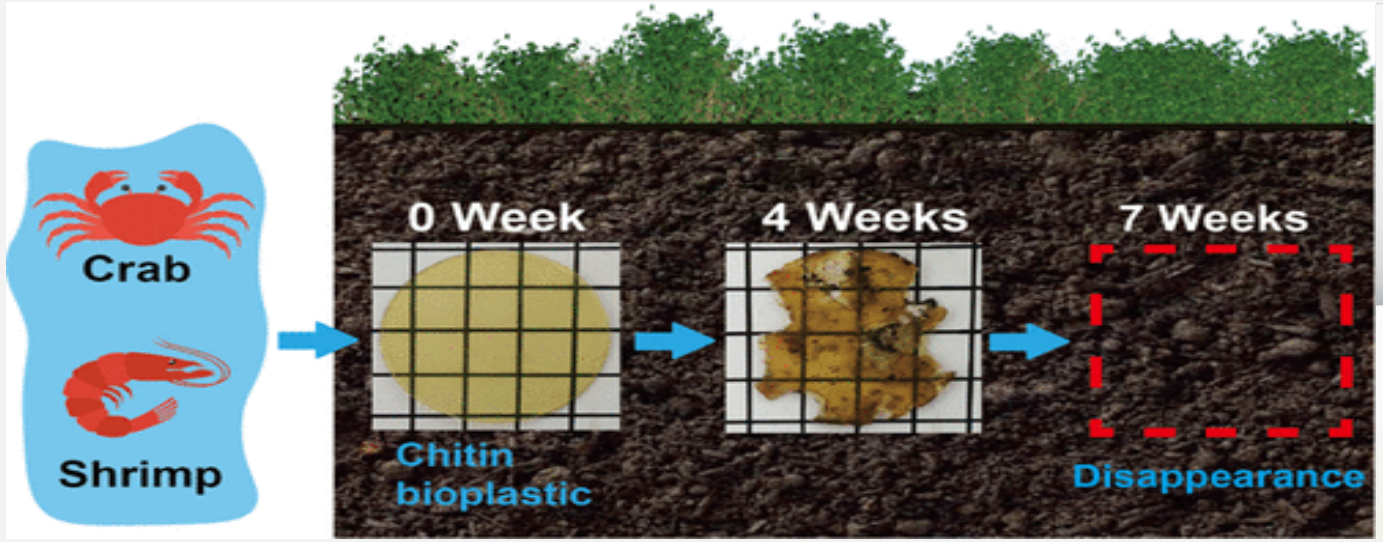


Избор на технология

Polysaccharides (starch)

Термопластичен опаковъчен филм от други биополимери

- Използване на източници богати на биополимери



Избор на технология

Other polyesters (PCL, PBAT, PBS, PHA,…)

Благодаря за вниманието!

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