Plant origin food packaging priority end-of-life treatment: most efficient integration into circular economy

BACKGROUND

Food and beverage product groups held a majority in fast-moving consumer goods (FMCG). Most of it is packed in different types and material packaging.
The most efficient packaging integration into circular economy could be achieved if right packaging materials and priority choice of resources (waste) management hierarchy are applied.

OBJECTIVES

- Review of existing plant-origin material applications in food sector;
- Highlight priority end-of-life treatment scenarios based on circular economy and resource management priorities.

METHOD

Literature review, focused only on primary recyclable and/or compostable food packaging made of plant based raw materials (paper and plant-origin plastic).

RESULTS

Packaging made of plant-origin plastics and paper covers all food and beverage product groups. All of existing bio-origin materials (if designed properly) can, and are already integrated into mechanical and / or biological waste management systems.

Material applications and properties	Fossil based plastic and drop-ins	Novel bio origin plastic	Paper coated with bio-origin coating	Uncoated paper
barrier properties	very good	good	medium	poor
shelf life	long	long/medium	medium /short	short
application	beverages and wet/ fresh food with high barrier requirements	beverages and wet/ fresh food with high/medium barrier requirements	fast food, fresh dry food, grains and bakery, groceries	grains and dry food / fresh bakery, groceries
recycling	mechanical	mechanical / biological	mechanical / biological	mechanical / biological
end-of-life priorities	re-use, recycling	re-use, recycling, biological treatment	recycling, biological treatment	recycling, biological treatment

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