

Active labels for the quality control of packaged fruits and vegetables.

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16th November 2021



2/ Project and Technologies

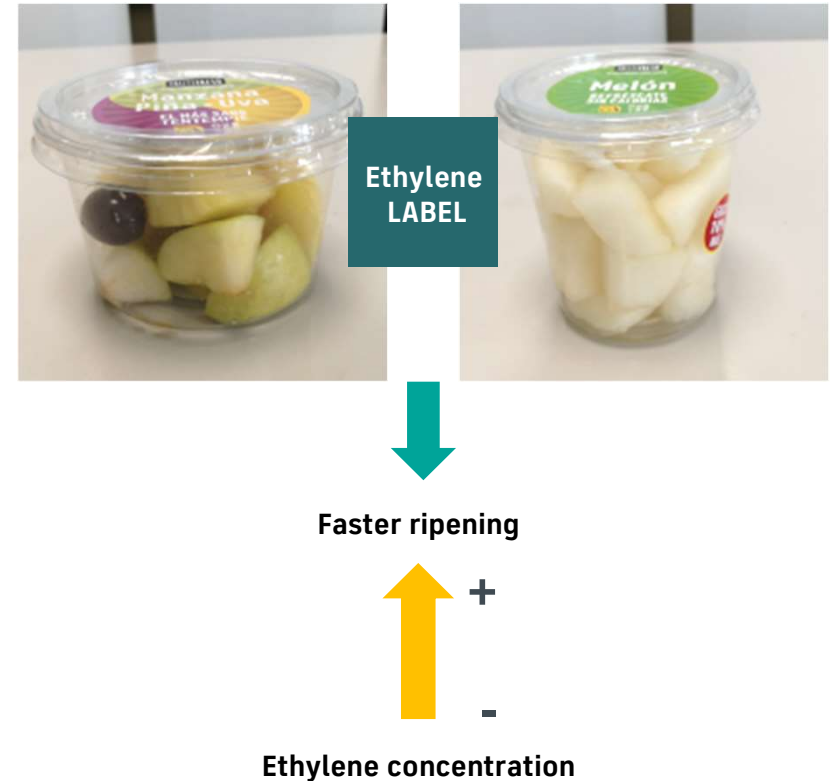
Solutions to tackle Food Waste:

- ITENE intelligent labels to control the generated ethylene atmosphere

BACKGROUND: Ethylene is known as the ripening hormone. Ethylene is a gas released by some fruits and vegetables that causes to ripen faster.

- Some fruits & vegetables are ethylene producers when ripening: apples, avocados, bananas, melons, pears and peaches among others.
- Some fruits & vegetables are ethylene sensitive, and they ripen faster in an ethylene rich atmosphere: apples, avocados, bananas, grapes, kiwis, cucumber, watermelon among others.
- Some fruits & vegetables are both: ethylene producer and ethylene sensitive: apples, avocados, bananas, kiwis, peaches among others.

NEED: A method to control the ethylene atmosphere in a fruit & vegetable package in order to control the optimal consumption of some fruits & vegetables, since the CO₂ atmosphere is not useful to control the ripening degree of fruits & vegetables.



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Faster ripening



Ethylene concentration

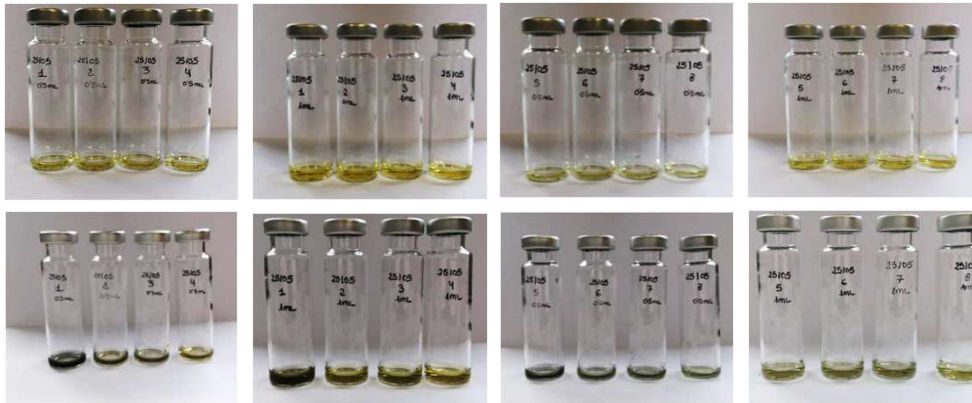
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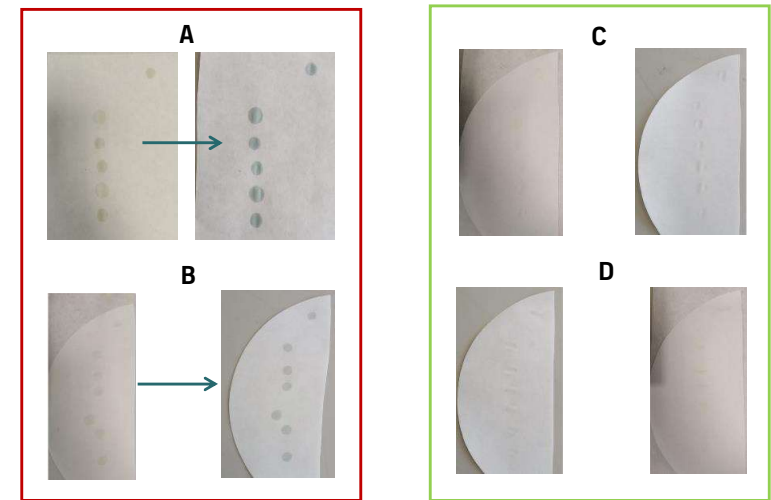
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ETHYLENE Label based on a visual colour change

SCREENING OF COLOURS CHANGES AND SENSITIVITY EVALUATION of the INK composition



SCREENING OF COLOURS CHANGES AND SENSITIVITY EVALUATION of the deposited INK



Instable

OK

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ETHYLENE Label based on a visual colour change

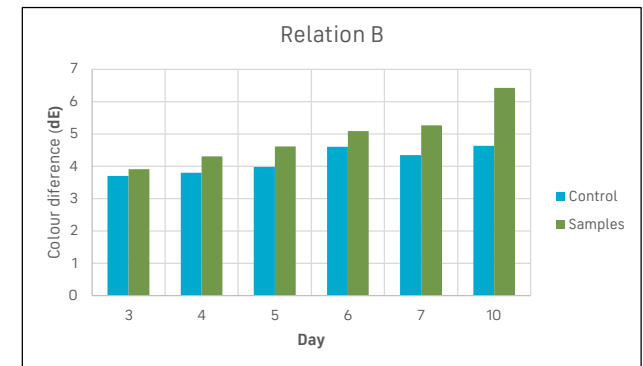
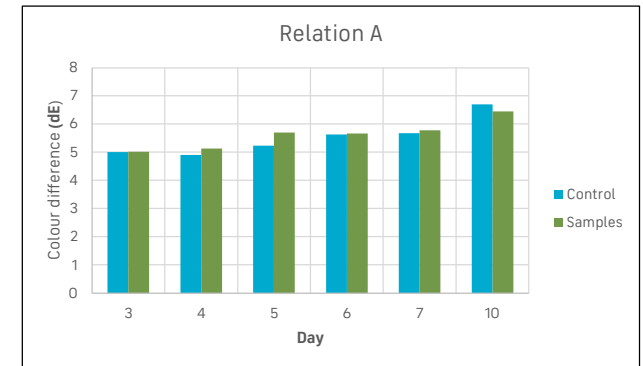
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Day 0



Day 6



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3 / Conclusions



- Tackling food waste must be addressed in order to help against hunger and climate change.
- Food chain is responsible of **one-third of all food** wasted.
- Mechanism to tackle the food waste in the food chain should be addressed.
- Packaging with intelligent labels could help to control food loss and waste.
- ITENE has developed CO₂ label indicators that could help to monitor the suitable conditions of packaged food product. This label could be optimised to the required conditions and CO₂ concentrations.
- ITENE has developed a ITENE label indicator that could help to identify the suitable ripening conditions of some fruits to avoid food waste.

THANK YOU ALL FOR YOUR ATTENTION

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