

Campione

Carob pod treatment for the production of a healthier chocolate substitute - Lebanon

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1. Project idea

Goal

To explore potential of treating carob pods for application as cocoa replacement in chocolate industry. (First step for larger study on refinery of Carob)

Consortium

Lebanon: Carob producer (Agrocedus), Market Analysis, (Made-by-Nature), Processing and packaging (Zakka Techn.), Dissemination (QOOt)

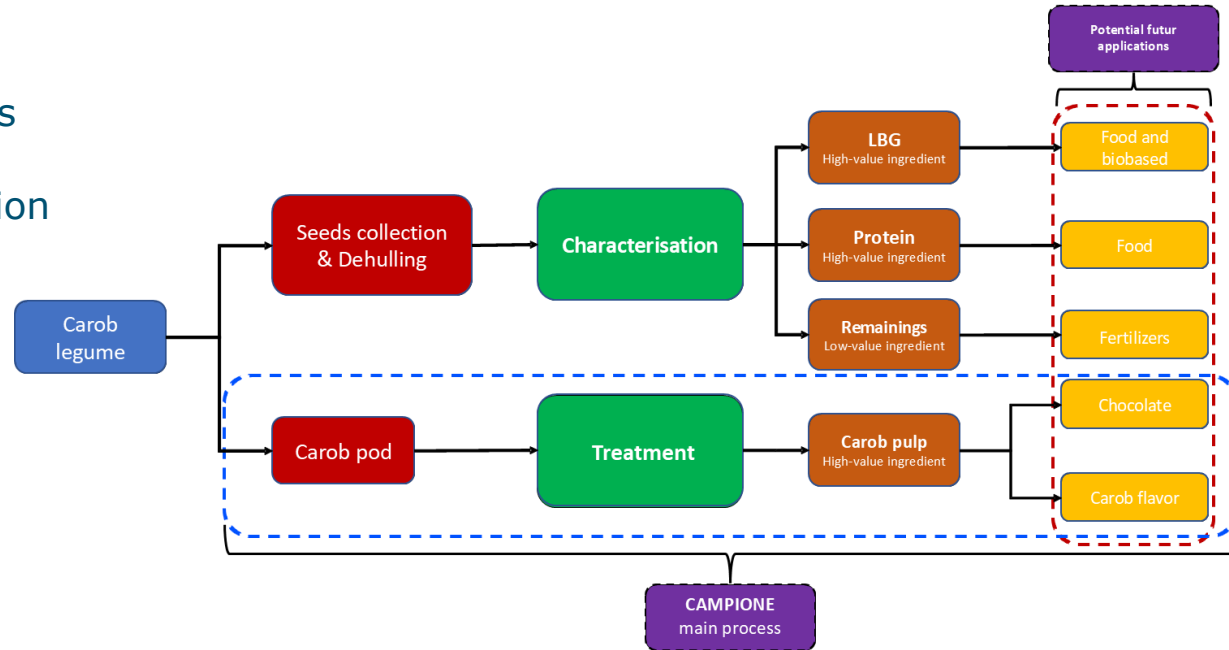
NL: Processing and flavour research (WFBR), Oil producer (NoPalm Ingr.), Processing equipm. (Biostream), Dissemination EU (Effost)

UK: Chocolate producer (Mondelez)

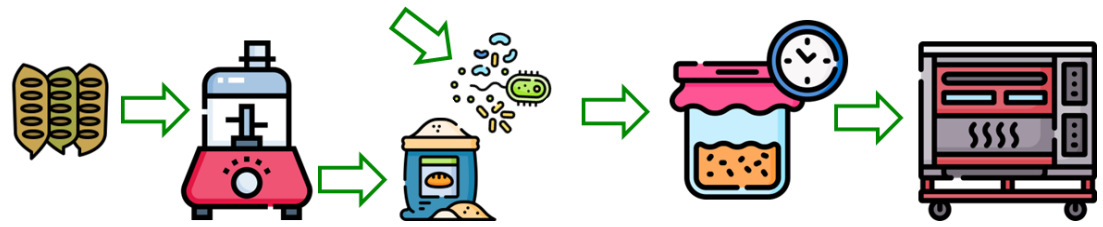
1. Project idea

Approach

- Treatment of carob pods
Analysis of flavour profiles
- Test in chocolate application
- Evaluate carob pods to produce oil by yeast



2. Results



Treatment

- Performed to compare to cocoa beans
- Very good results: great smell when drying for application tests

Flavour analysis

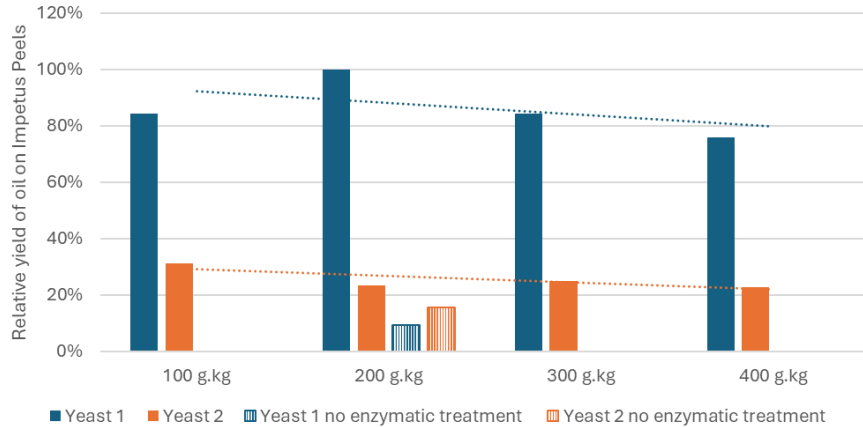
- Performed on treated and untreated carob pods
- Flavour profile and 'peaks' match those for cocoa
- Treatment influences flavour profile of carob pods

Chocolate application test

- First trials yield very promising results



3. Oil production from carob pods by yeast



- Carob pods form perfect feedstock for growth and oil production by oleaginous yeasts
- Just as with other feedstocks, we see large differences in growth performance between different yeasts

4. Conclusions

- Carob pods can be successfully treated
- Flavour profile of treated carob can be successfully matched to cocoa flavours.
- Treatment influences the flavour profile of carob pod material
- Application as cocoa replacement in chocolate production very promising
- Carob pods are a good feedstock for oil production
- Market potential for expansion of carob production in Lebanon is supported by these positive results
- Very large price difference between Carob (pods!) and cocoa beans. Treatment process likely not too expensive.

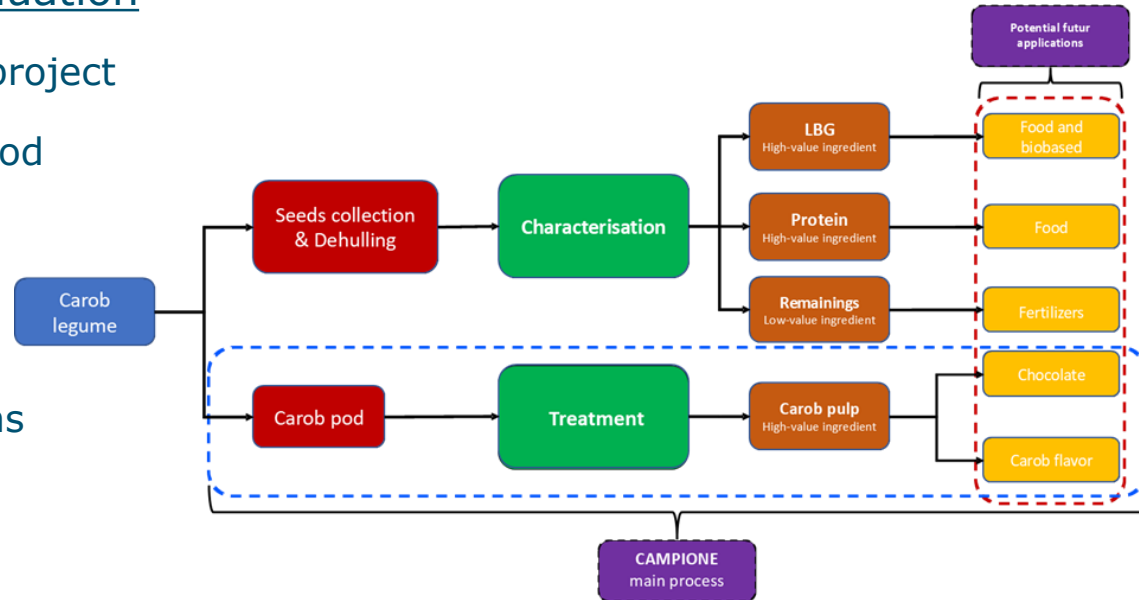


5. Next steps

Several possibilities for continuation

Towards a TKI PPP, or a bilateral project

- On further researching carob pod treatment & flavour
- Expand roasting
- On the re-development of the refinery process for carob beans and pods
- All of the above
- Situation in Lebanon



6. SMP results relevant for 'penvoerder'

- Carob pods are perfect feedstock for yeast oil production
- Relevant for cost-effective oil production is the local abundance/availability of carob and the cost of this feedstock
- It seems more logical to apply a chocolate-oriented treatment on the carob pods and use the residual sidestream for yeast oil production

Thank you for your attention!

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