

Rapportage projectinformatie PPS-en Landbouw, water, voedsel

Datum versie: 7 december 2020

Uit projectplan

1. Projectinformatie (*Project information*)

1.1 Organisatie/financiering (keuze maken)	TKI A&F
1.2 Projectnummer	LWV19236
1.3 Project titel	Strategies to diminish astringency of plant proteins
1.4 Projectleider (naam en emailadres)	Els de Hoog Els.deHoog@nizo.com
1.5 Startdatum (dd-mm-jjjj)	01-01-2020
1.6 Einddatum (dd-mm-jjjj)	31-12-2022
1.7 MMIP primair (nummer en naam van het MMIP, zie overzicht bijlage 1)	D4 Duurzame en veilige verwerking
1.8 MMIP secundair (deze alleen invullen als er een 2 ^e MMIP is waar het project aan bijdraagt)	

2. Projectomschrijving (*Project description*)

2.1 Samenvatting (<i>Summary</i>) Astringency is a major sensory defect of plant proteins and polyphenols and therefore a challenge for the production of tasty plant based foods, and therefore the valorisation of plant protein-rich waste streams. This project aims at developing approaches and technologies to reduce this astringency in plant based foods based on understanding the molecular mechanism of astringency. Industrial partners will provide plant ingredients and results from industrial pilot tests. When necessary, new science methods will be developed by the knowledge institutes to measure, predict and eventually reduce astringency. This combination of practice and science will enable the application of the results in new and/or improved plant based products and guarantee the societal relevance of this work.
2.2 Doel van het project (<i>Goal of the project</i>) This project will deliver i) methods to measure astringency, ii) prediction of astringency based on understanding of the molecular mechanisms and iii) potential strategies to decrease astringency.
2.3 Motivatie (<i>Motivation</i>) The work fits in the current trend towards a more sustainable food production in which plant proteins and other plant-based products play a central role. This project will contribute to the development of tasty products and to the acceptance of consumers and shift towards a healthier diet with more plant based proteins (the so-called protein transition).
2.4 Resultaat (<i>Result</i>) De milestones of the project are defined below MS 1A Inventory of astringency in food products (beverage) prepared from different plant proteins to be completed 31-07-2020

MS 1B Selection of protein sources and ingredients as well as (model) beverage composition for the following WPs to be completed 31-07-2020
MS2A Measuring astringency using physical techniques to be completed 31-07-2021
MS2B Predicting astringency on the basis of molecular properties to be completed 31-07-2021
MS3A Plant protein ingredients and or fractions with reduced astringency to be completed 31-01-2022
MS3B Beverages demonstrating different strategies to reduce their astringent perception to be completed 31-12-2022
Meetings: 3 project meetings and 1 steering committee meeting per year

Jaarrapportage

3. Status project

3.1 Status project (keuze maken)	project is delayed
3.2 Toelichting incl. voorziene wijzigingen t.o.v. het oorspronkelijke werkplan	MS 1A could not be completed due to corona situation causing lack of capacity in resources and lab facilities. Completion of MS1A is delayed to 31-07-2021

4. Behaalde resultaten (*Achieved results*)

4.1 Korte beschrijving van de inhoudelijke resultaten en hun bijdrage aan het MMIP (zoals beschreven in 2.2) (<i>Short description of the substantive results</i>)
<p>The inventory of astringency in food beverages prepared from different plant proteins started with exploring commercially available drinks. In addition, model beverages were prepared based on several different protein sources. This gave insight in the range of astringency perception encountered today in these type of products. A selection of five plant protein sources for studying in this consortium was made and the composition of model beverages was agreed upon (MS1B). Training of sensory panels was started and revealed that the sensory attribute 'astringency' is a complex attribute. It consists of a combination of various aspects. Moreover, large variations in perception between panel members were observed. It is hypothesized that differences in individual saliva composition causes differences in individual astringency scorings.</p> <p>A literature review was performed on astringency perception. Most research reported in this field is on red wine, tea and (unripe) fruits, and on the interaction of proline rich salivary proteins with polyphenols. A minority of the astringency research was focused on dairy formulations, and studies on plant proteins are scarce. Quite a large body of work was found on the usefulness of tribology to detect astringency in vitro, but there is no clear conclusion. Part of the problem is that saliva has to be part of the system of which the tribology is investigated. Also relevant are the latest developments on tongue models.</p> <p>Experiments started on studying the impact of saliva on (commercial) plant-based beverages using various techniques. This gave first insights in the usefulness of these techniques for studying astringency, and the exploration of the impact of some parameters on astringency. No conclusive results have been reached yet.</p>

4.2 Deliverables (bijeenkomsten en andere output, die niet benoemd wordt in 4.3 en 4.4)
In total 4 meetings with the consortium partners were organized, 3 meetings with the project scientific team and 1 meeting with the steering committee.
4.3 Communicatie (lijsten) (Communication)
4.3.1 Wetenschappelijke artikelen en hun doi (<i>Digital Object Identifiers</i>)
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4.3.2 Rapporten/artikelen in vakbladen
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4.3.3 Overige communicatie-uitingen (inleidingen/posters/radio-tv/social media/workshops/beurzen)
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4.4 Overige resultaten: technieken, apparaten, methodes (Other results)
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4.5 Projectwebsite: geef het adres van de projectwebsite (indien beschikbaar)
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