PPP Project Annual Report 2018
The PPP-projects that have been established under the direction of the top sectors must submit an annual report on their technical and financial progress. This format is to be used for reporting the technical progress. A separate format ('PPP final report') is available for PPP-projects that have been completed in 2018.
The annual reports will be published in full on the websites of the TKIs/top sector, excluding the blocks 'Approval coordinator/consortium' and 'Planning and progress' . Please ensure that no confidential matters are left in the remaining blocks.
The PPP Project Annual Reports must be submitted by 15 February 2019 to Hans van der Kolk

General information	
PPP number	DFI-AF-18006B (AF-17026)
Title	How low can you go: Consumer methodology and strategies for maintaining sensory quality of novel healthy foods.
Theme	Gezond en Veilig
Executive knowledge institution(s)	Wageningen Food and Biobased Research
Research project leader (name + e-mail address)	Marcel Meinders marcel.meinders@wur.nl
Coordinator (on behalf of private parties)	Christien van Beusekom (Crisp Sensation) Javier Ignacio Sáinz Lobo (Prodalysa)
Government contact person	Marjan van Creij (Min. van LNV)
Total project size (k€)	1200000 euro (300000 in kind, 300000 cash, 600000 subsidy)
Address project website	
Start date	1-1-2018
End date	31-12-2020

Approval coordinator/consortium The annual report should be discussed with the coordinator/the consortium. The TKIs appreciate being informed of possible feedback on the annual report.	
The coordinator has assessed the annual report on behalf of the consortium:	approved
Possible feedback on the annual report:	

Short content description/aim PPS
What is going on and how is this project involved?
What will be delivered by the project and what is the effect of this?

Motivation:
The daily intake of sodium, sugar, and fats by modern western consumers, looking for convenience in preparation combined with the increasing snacking trend, is too high. This leads to major health issues and rising costs of healthcare. In many countries, both the food industries and consumers have pledged to make western diets healthier. However, the assortment of processed foods meeting nutrition and health requirements is still small and available products do not often meet convenience and expectations.

Goal and approach:
To achieve breakthrough innovations in the following areas:
1. fundamental insights into the functional role of ingredients and their interactions in the complex food matrix during processing,
2. physical and chemical based models that link (thermo-dynamical) ingredient properties and

ingredients composition to the mechanical and sensorial properties of food,
3. fundamental insights into the role of stevia derived glycosides and their interactions with other sugars, sweeteners and enhancers on sweetness perception and metabolism.

Using state-of-the-art technologies two work packages are defined, being
WP1: Functionality of stevia derived glycosides
WP2: Ingredient interactions and processing in complex food matrices

Desired impact:
The proposed project aims at developing new strategies for developing convenient and healthy(e.g. sugar and/or fat reduced) foods (impact for food sector and society) allowing food manufacturers (impact for the food sector) to produce new food products that meet convenience, shelf-life, nutrition, health and preference requirements (impact for the society) and will be successful on the market. The following deliverable is intended:

- Knowledge-based strategies to create foods with a healthier formulation while meeting consumer's expectations
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Planning and progress (if there are changes to the project plan, please explain)	
Is the PPP going according to plan?	yes
Have there been changes in the consortium/project partners?	no
Is there a delay and/or deferred delivery date?	no
Are there any substantive bottlenecks?	no
Are there any deviations from the projected budget?	no

Results in 2018/ so far
Give a short description of the high-lights and (most important) project deliverable in 2018 / so far and their target group

WP1: STEVIA DERIVED GLYCOSIDES

- Project plan and project scoping finalized
- Literature study to increase basic understanding of stevia glycosides-receptor interactions has been started. This basic knowledge is needed to design a cell assay approach to measure the sweet as well as bitter taste responses of different (modified) stevia glycosides fractions in a sensitive and high throughput way.

WP2: CRISPY MICROWAVABLE SNACKS

- WP 2.1: Detailed scoping finalized
  - List of key parameters controlling crispness of breaded crumbs composed
  - List of samples and studies to be performed composed
  - Overview of the important relations between the key parameters describing ingredient composition, process, and product quality (mechanical and sensory) based on recent WFBR studies and literature made
  - Samples and experimental techniques and methodologies to be used selected
  - Work breakdown structure finalized

- WP 2.2 Characterization of product properties during the snack preparation phases at standard conditions running. Products are made at WFBR and substrate, coating and crumbs are being characterized (physical, structural, mechanical, and fracture properties) during the whole

production chain, from crumb application, pre-frying till freezing, storage and final heating in the microwave.

- WP 2.3 Impact of ingredients and crumb production process on crumb performance running
  - Workshop/brainstorm with experts in the field of WFBR and CrispSensation has been finalized. This has led to a list of ingredients and processes to improve breaded crumb properties
  - Crumbs with different compositions are made and some will be tested in 2019
- WP 2.4 Effect of processing steps in snack preparation chain on crumb sensory properties will be starting early 2019
- WP 2.5 Effect of batter/barrier and substrate properties on crumb sensory properties
  - Workshop/brainstorm with experts in the field to map preferred barrier and substrate properties in the preparation chain has been finalized. This has led to a product concept that will be studied during the project
  - List with possible alternative barriers and substrates has been made and new formulations to be tested during the first set of experiments are chosen
  - Measurement of crumb, barrier, and substrate properties during the various phases of preparation of new formulation as described in WP 2.2 planned in 2019
- WP 2.6 Integrated application of new developed concepts is planned to be started in 2020
- WP 2.7 Sensory and consumer studies will be started in 2019
- WP2.8 Implementation and development of quantitative design rules for prediction and optimization of microwavable snack quality is running
  - Mechanistic models based on the thermo-dynamical description of water transport in polymeric porous and non-porous systems that have been developed by WFBR in previous projects have been combined, extended and newly implemented to make them suitable to describe the water transport during the whole production chain of the whole product (wet substrate, barrier/coating and dry crumb), thus for temperatures varying from about -20°C during storage till about 100°C during reheating, and water activities ranging from about 0.1 till 1.

Number of delivered products in 2018 / so far *(in an appendix, please provide the titles and/or description of the products or a link to the products on public websites)*			
Academic articles	Reports	Articles in journals	Introductions/workshops
0	2	0	3

Appendix: Names of the products or a link to the products on a public website

- Annex 1 Hologo proposal_including Prodalysa.pdf (Full project plan)
- WBS_Hologo.xlsx (Work Breakdown Structure)
- 181025ProcessesParametersRQs.xlsx (result from various brainstorms)