Request for industrial partners (April 15th, 2019)

Project title: **Controlled release, uptake and enhanced (bio-) availability of active ingredients in ruminant feed and fertilizers by encapsulation**

Acronym: Encaps2Control

Project ID	
Type	ICON/O&O
Period	3 years
Starting date	2019
Total project budget (€)	TBD
Subsidy percentage	According to SBO- and O&O regulations
Catalisti contact	Johan De Houwer

Project description

Introduction

It is well known that encapsulation can be a versatile technology to protect active ingredients from degradation due to external factors like weather conditions (e.g. temperature, humidity, UV-light), chemical agents (e.g. acids, bases, oxidizers) and/or microbial action. The next step in encapsulation is not only to protect the active ingredient, but also release it in a controlled fashion and preferably even enhance its uptake and (bio)-availability. Depending on the application, also the choice of chemical building blocks can be another limiting factor.

For instance, in the case of animal feed, the chemical building blocks should be preferably bio-based and should not have adverse effects on the animal's health. In the specific case of ruminants, encapsulation of feed ingredients is already known to render them stable enough to bypass the rumen and to reach the further intestinal track, where the ingredients are released and can then be absorbed into the blood stream. The current state-of-the-art encapsulation technology (e.g. based on hydrogenated fatty acids) however also has a downside, as it does not allow processability of the encapsulated feed ingredients at elevated temperatures. It is therefore challenging to find an encapsulation technology that combines both the rumen bypass aspect as well as the enhanced processability.

Another example where encapsulation technology is used, and which also requires very specific control, is the fertilizer industry. This is again a combination of processability of the encapsulated fertilizer with controlled release under specific conditions and the use of benign and bio-degradable building blocks.

Goal

The goal of the project is to develop a new encapsulation technology which combines the advantages of existing encapsulation technology in terms of rendering feed ingredients 'rumen bypass', without the disadvantages related to processability of the encapsulated feed ingredients at elevated temperatures.

The challenge will be to find benign chemical building blocks from renewable sources that enable an encapsulation technology that:

- enhances the thermal stability of the encapsulated feed ingredients to enable processing at elevated temperatures;
- protects the feed ingredients against microbial (and chemical) action in the rumen;
- releases the feed ingredients in the abomasum (true stomach) and/or small intestine;
- is metabolized after performing its function;
- preferentially enhances the bio-availability of the feed ingredients or nutrients (after release and/or metabolization).

Expertise

To complement the current consortium, Catalisti is searching for:

- Companies active in the agro-chemical (e.g. producers of fertilizers) or other sectors that want to explore new encapsulation technology based on building blocks from renewable sources (and that do not have activities in the animal feed sector)
- Companies active in converting biomass into chemical building blocks (e.g. chitine or other polysaccharides, lignin, other bio-polymers) which can be used in the encapsulation technology

Partners that wish to participate in Catalisti-supported projects, are required to be Member of Catalisti. For more information on membership, membership fees and Catalisti procedures, please do contact Johan De Houwer (jdehouwer@catalisti.be).

How to reply to this request

Please send an **email** before **April 29, 2019 (12h00)** to *Johan De Houwer* (jdehouwer@catalisti.be) with nverdonck@catalisti.be in CC, and **briefly describe your interest and potential contribution** to the project. Based on all offers, the current industrial partners will determine together with Catalisti which partners can join the consortium. After submission of your offer, you can be contacted by telephone to further elaborate your offer. The decision will be communicated in a period of 1-2 weeks after the closing date of this RfP but could take longer depending on the number of applications.

If you have questions concerning this Request for Partners, do not hesitate to contact *Johan De Houwer* (jdehouwer@catalisti.be) or +32 468 32 25 57.