

TechConnect Ventures
Sprint Challenge Brief:

QUESTIONS?

Contact challenge@techconnectventures.com

Selective Capture Of Compounds From Chocolate

ABSTRACT

The perception and enjoyment of chocolate depends on the complex interplay of compounds found within it. TechConnect's client wants the ability to selectively separate and retain target compounds in cocoa beans or chocolate in order to create new profiles for consumers.

BACKGROUND

The human race has enjoyed cocoa beans and chocolate for millennia. Through modern science and technology, we enjoy more flavors, formats and varieties than ever before. TechConnect's client, a global confectionary powerhouse, knows that a broad spectrum of compounds in chocolate strongly contribute to consumer perception and appreciation – some people enjoy the bitterness that can be present in dark chocolate whereas others relish the fruitiness found in other varieties. The client wants to uncover approaches and technologies that will allow them to remove specific target compounds and retain those compounds for later use. Utilizing this technology, the client intends to develop new profiles for chocolate.

All compounds that influence the aroma, flavor or perception of chocolate are of interest for this project, including but not limited to:

Specific compounds:

- 2-phenylethanol
- Acetic acid
- Ethyl 2-methylbutanoate
- Phenylethylamine
- Theobromine

Classes of compounds:

- Flavanols such as:
 - Catechin
 - Epicatechin
- Pyrazines such as:
 - 2,3-Dimethylpyrazine
 - 2-Ethyl-3-methylpyrazine
- Terpenes such as:
 - Geraniol
 - Linalool

All approaches able to selectively remove or retain any compounds that influence aroma, flavor or perception are in scope for this project. Ideally, a single technology will be able to filter out a targeted compound, retain it, and later add it to a product. All approaches are of interest, regardless of the current level of efficacy or speed.

Purpose built separation technologies as well as those adapted from other industries are of interest including but not limited to:

- Biomembrane filtration
- Chemical separation approaches
- Electrochemical technologies
- Micro-, ultra- or nano-filtration polymers
- Supercritical fluid extraction

Converting cocoa beans into chocolate requires multiple stages. Consequently, the client is open to separation approaches during any stage of that processing: fermentation, drying, roasting, grinding, or mixing. Approaches that can be added in-line during manufacturing are preferred but processing outside the manufacturing line is still of interest.

While technologies closer to commercial deployment are of greatest interest, there is no minimum technical maturity required for this project – all maturities welcome. After completing their initial review of approaches, the client may provide samples for pilot testing by respondents with technologies of interest. Approaches currently not ready for pilot testing are encouraged to include information about estimated performance as well as a development timeline to pilot maturity.

The goal of this sprint is to facilitate contact and interactions between the Sprint sponsor and commercial entities (including Start-ups), technology developers or research organization/university in this space.

REQUIREMENTS

Solvers submitting an Entry are encouraged to highlight capabilities in their Submission that meet criteria including:

- Overview of proposed technology:
 - Description of separation technology
 - Compound(s) removed
 - Cocoa bean/chocolate processing stage or format
 - Amount removed:
 - Per kilogram of product OR
 - Per hour
 - Ability to retain target compound(s)
 - Ability to release target compound(s)
- Demonstration capabilities
- Previous usage, if any
- Commercialization timeline
- Technical maturity

BUSINESS OPPORTUNITY FOR SOLVERS

All complete and eligible Entries will be included in an exclusive Innovation Opportunity Report that will be presented to our client. Solvers with well-matched capabilities may be contacted directly by either TechConnect Ventures or the client to discuss potential partnership opportunities, including – but not limited to – demonstrations, consulting, contract research, licensing, and more. Top-rated Entries may also be invited to register or participate in an upcoming TechConnect Ventures event or pitch program.

PARTICIPATION RULES & GUIDELINES

Solvers are encouraged to review the [Rules](#) and [Guidelines](#) provided on the Sprint page for details about participation, including submission criteria, eligibility information, and more.

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