THE PROCESS FOR THE SIMULATION OF THE HUMAN DIGESTIVE TRACT	
Offering Organization:	Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.
Type of Organization:	Public Research Center
Development Stage:	Marketable Product
Desired Relationship:	– Technological research and development financing (technological partner) – Specialized application tests – Creation of a new company (Joint Venture) for the commercialization of the products outlined herein – Licensing of patents
Sector:	Food & Pharmaceuticals
Area of knowledge:	Food Technology & Pharmaceuticals
Key words:	Human digestive tract, simulator

DETAILED DESCRIPTION:

Problem to be solved:

The recent interest in studying the behavior of bacteria in the digestive tract has prompted the creation of several intestinal microbial ecosystem simulators. The *in vitro* model has yet to find a process which mimics the physiology of the human digestive system.

Solution:

This simulator gives us the ability to analyze the human digestive tract at different moments and under varying conditions. Food can be administered to simulate the average amount swallowed by a person while also taking into consideration age, gender, and pathological or health conditions.

New and Innovative Aspects:

- Changes in the microflora can be made based on the age, gender, and pathological or health conditions of the subject.
- The ability to remove samples at any time throughout the process facilitates the quantification of metabolites. This is equivalent to having actual sick patients.
- It is possible to evaluate the digestion of solids, liquids, isolated ingredients, dietary supplements, food additives, drugs and/or excipients. The results can be extrapolated to actual physiological conditions since the digestive process is simulated under real conditions.

TECHNICAL CHARACTERISTICS:

This simulates the digestion process in a way that mimics the physiology of the human digestive system. It implements a new process for it, which allows sampling at any time, without dependence on the use of higher organisms (animals).

Main advantages derived from its utilization:

- This allows very versatile evaluations. You can simulate children, the elderly, women, healthy adults, etc.
- It costs less than a clinical trial.
- The time needed for evaluation is reduced compared to a clinical trial.
- It's a cleaner system since biowaste is not generated as it is in an *in vitro* system
- It allows for continuous sampling without invading patients or animals.

Applications:

- Analysis of the functionality of food ingredients, supplements or drinks.For example:
  - Characterization of intestinal microbial communities: composition and activity
  - Host response molecules generated by the intestinal microbiota
  - Studies of the potential antioxidant components of digested food or ingredients
  - *In vitro* studies relating to the release of substances
  - Modulation of the effects of food or drugs on the intestinal microflora

INTELLECTUAL PROPERTY

- Patent application Mx/a/2012/005418 submitted May 9th, 2012

ABOUT THE OFFERING ORGANIZATION

Presentation:	El Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. (CIATEJ) is a public research center that belongs to the national technology development and innovation network, the National Council for Science and Technology (CONACyT). CIATEJ is focused on the agricultural, food, health, and environmental sectors with an emphasis on the application of innovative biotechnology.
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