

Microbes exist anywhere around us, although we cannot see them. Some of them are indispensable for producing pharmaceuticals, for instance, as well as for fermented food production. In particular, numbers of microbes inhabit the stomach and large intestine of animals including human, which play important roles in their health.

We are conducting researches focusing on microbes in various ecological niche and on wide range of animals as biological resources in order to pursue their amazing potentiality, and trying to apply their unlimited abilities so as to contribute to establishing sustainable society.



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Keywords:

- *Intestinal microbial fermentation
- *Food byproduct for feed
- *Probiotics and prebiotics for animal production

Research theme

- A. Feed use of untapped food resources and food byproducts for constructing an energy cycle system
- B. Exploring new function of microbes inhabiting animal digestive tract

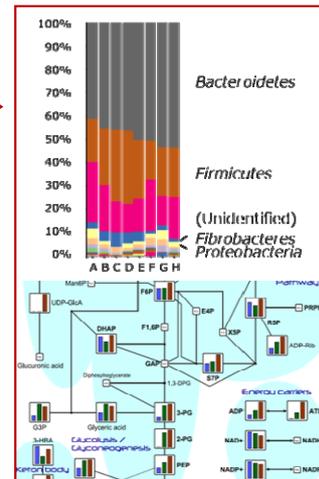
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<http://www.shinshu-u.ac.jp/faculty/agriculture/lab/ueno/english/index.html>

-- If you are interested in learning realm of our research theme, and in conducting intensive studies to discover/create novel idea into reality, please take a look onto our **message** available on the website. We would welcome those who have been learning about their specialized fields where it is seemingly unrelated to our present research area.



Detecting and measuring **who, how many, and why** are the microbes ?



Billions of cattle in the world need food that is **Healthy, Delicious, and Superb!**

Our mission: "Increasing animal productivity by rejuvenating internal microorganisms"

- Object 1 __> Elucidation of the symbiotic relationship between animals and the microbes
- Object 2 __> Construction of a recycling-based, sustainable society through the implementation of the further use of residual substances by leveraging functional microbes

There are many kinds of microbes existing anywhere around us, although we cannot see them. Some of them cause diseases and food poisoning and others are indispensable for producing pharmaceuticals, as well as for food production such as yogurt and pickles (known as "fermented food"). In addition, numbers of microbes inhabit the stomach and large intestine of animals including human, which play important roles in their health.

In our lab, research focuses involve these functional microbes and even on wide range of creatures as biological resources to pursue their potentiality deeply, and apply their unlimited abilities so as to contribute to establishment the harmonious recycling-based, sustainable society.

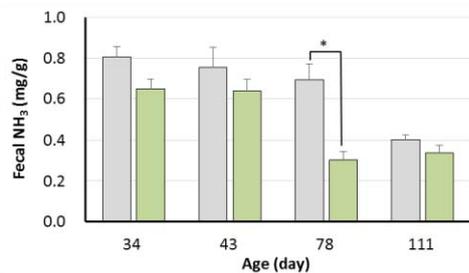
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Research Topics:

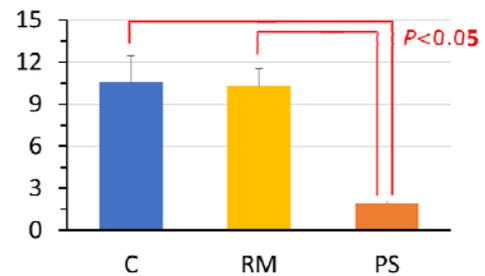
A. Feed use of untapped food resources and food byproducts for constructing an energy cycle system



Feed use of untapped, residual substance in food manufacture or food waste is an effective means of completion of resource recycling and has been investigated for the implementation. We are therefore targeting at developing techniques enable to convert materials of food origin suitable to feed which is both palatable and nutritious, by a combination of microbiological and molecular biological elucidation of nutritional absorption systems in the animals.



CH₄ gas proportion (% to total gas)



B. Exploring new material for microbes inhabiting animal digestive tract

It is well known that various and numerous microbes inhabit animal's tract (the rumen and lower gut), and some of which has shown the ability for ill-defined but certain health merits for the host. The goal is to build up such microbial potential for a technique that can be applied in vivo or in an industrial use, starting with revealing the nature of which intestinal microbes depict.

Rumen bacterial community profiling (3 mo old)

