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# Applied Microbiology and Beneficial Microbes

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### Applied microbes: The good, the bad and the fastidious

Assemblies of microorganisms in their various environmental niches harbour a vast metabolic potential. To make use of its specific activity, the targeted identification of particular members of these communities within or outside of its native habitat has been done to facilitate novel processes or functions or to hasten existing ones. Mining this prospective wealth of activity for biotechnology, agriculture, medicine, food microbiology and bioremediation is at the core of applied microbiology. For example, *entotheonella*, a microbial marine invertebrate symbiont is assumed to produce an antifungal agent in the Palauan sponge *Theonella swinhoei*. The same organism, on the other hand may produce an immunosuppressive, neuroprotective, anti-proliferative, microtubule-stabilizing and antifungal compound in the Caribbean sponge *Discodermia dissoluta*. Another example is the use of the shell wastes of marine invertebrates and the chitinolytic machinery of *Serratia marcescens* in combination with the acid production of *Lactobacillus* and the proteases of *Bacillus cereus*, which leads to an environmental friendlier alternative to traditional production of chitin and chitosan. Additionally, *Lactobacillus* by itself has been shown to protect from urinary tract infections while its status as probiotic has long been established. Today it is well known that the microbiota composition of our gut influences strongly our health and dysbiosis is a serious risk factor. Targeted intervention of probiotics such as *Lactobacillus* and *Bifidobacterium* may counteract the dysbiosis caused by various extrinsic factors during the acquisition of the early microbiota and into adulthood. Microorganisms for the maintenance of our well-being.

### Biography

Wolfram Brueck has graduated in Microbiology at St. Cloud State University in Minnesota, USA and MSc in Medical and Molecular Microbiology at the University of Manchester, UK. In 2003, he has completed his PhD at the University of Reading, UK on the influence of prebiotic milk peptides on infant health. His areas of research interest are gut health, food microbiology, green production of bioactives and added value ingredients from food wastes.

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