Microbial Single Cell Protein Revisited in the Context of Global Sustainability

Dr. Willy Verstraete*, Ghent University, Belgium

Co-authors: Silvio Matassa, Stef Vervaet, Ghent University / KWR /Avecom

Every year, 3% of total global energy goes to produce 100 million tons of nitrogen fertilizer using the Haber Bosch process. Conventional agriculture has a nitrogen use efficiency of < 20%. Hence, 80% of the Haber Bosch nitrogen is 'lost' in the environment. This loss is detrimental and contributes to climate change. However, times are changing in terms of the conventional supply of food/protein because both soy and fish yields have reached their planetary limits. New production of microbial single cell protein is currently under development. Microbial cells can grow with very high nitrogen uptake resulting in edible protein. Microbial single cell protein grown using hydrogen and carbon dioxide can be a more ‘green’ production of food protein. The microbial cells also produce valuable chemicals such as polyhydroxybutyrate, polyphosphates, alginites and immuno-active substances. This talk will present current research and development of single cell protein and other food ingredients for more sustainable food production.

* Dr. Willy Verstraete - Dr. Willy Verstraete is emeritus professor and previous head, Laboratory of Microbial Ecology and Technology at Ghent University (Belgium). He is an internationally recognized leader in biotechnology R&D. He has won the 2005 Excellence in Science Prize from the Belgian National Science Foundation and the Imhoff Award from the International Water Association (IWA) for his contributions to water biotreatment. He graduated in 1968 from Gent University as a bio-engineer and earned his Ph.D. degree in microbiology at Cornell University, Ithaca, NY (USA).

Professional development hours (PDHs). PDHs will be recorded and an email documenting attendance will be sent to attendees to use towards their Wisconsin Professional Engineer’s license.