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Microalgae as a sustainable food source

With the world's population set to grow to 9.7 billion by 2050, the world is facing ever increasing demands for a reliable protein supply. Furthermore, production of meat is energy intensive and requires large quantities of feed, water and fertilizers. The feed used for livestock in the USA could feed 800 million people. There is an urgent need to develop alternative sources of protein. There is global interest in exploiting microalgae for biofuel production, however, with their high protein and carbohydrate content there is significant opportunity to develop microalgae based food products that can impact substantially on food sustainability. Current state of the art methods of growing and harvesting microalgae at small and large scale will be presented and examples of food products currently on the market identified. The potential of microalgae as a food source will be discussed.

Biography

Ian Watson's first degree was in applied physics, followed by a PhD from the engineering Faculty at the University of Glasgow in "Optimizing the gaseous discharge and optical coupling of a pulsed CO2 laser" which was specifically designed for material processing of reflective and refractory materials. In the early 1990s he began to research the effects of high power laser beams on microorganisms and laser sterilization and inactivation. He has published on the direct effect of a range of lasers and their efficacy on treating different substrates, including solids, liquids and air and a range of microorganisms from *E. coli* to *B. globigii*, an anthrax simulant. As well as building lasers and laser scanning inactivation systems he has developed combined systems for decontamination and inactivation applications. These systems comprised: lasers, UV, pulsed flash lamp systems, microwave and chemical treatments. Laser and plasma systems have been specifically designed, fabricated and successfully tested for treating air.

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