第255回

物質科学セミナー

題名：Enigmatic microfungal oasis in deep-sea ecosystems: exploring valuable genetic resources

(要素-システム研究プロジェクトセミナーとの共催)

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場所：総合科学部　K306

講演要旨：

The deep-sea biosphere refers to the lowest layer in the ocean (beyond 1800 m approximately), which is characterized by unique environmental conditions such as high hydrostatic pressure, low temperature and pH (some exceptions include hydrothermal vent systems), nutrient limitation, and high salinity concentrations. Recent research efforts and novel technologies have demonstrated that deep-sea ecosystems harbor rich, yet mostly unexplored microbial communities. Growing evidence, suggest that microfungi are successful deep-sea colonizers, with remarkable abilities to adapt to adverse conditions. In view of these adaptations to bear environmental stress, their high abundance, and diversity of ecological strategies, these microorganisms represent valuable genetic resources for potential exploitation. This includes their use as efficient hydrocarbonoclasts under demanding environmental conditions, and bioprospecting. Herein, the ability to tolerate and use hydrocarbons of fungal isolates obtained from deep-sea sediments is explored, presenting physiologic and transcriptomic evidence. Also, fungal ecological patterns are examined in the recently discovered hydrothermal vents system from Pescadero Basin (including carbonate and sulfide chimney structures) using culture-dependent and independent approaches unveiling complex cross-kingdom interactions with autochthonous bacteria.These efforts contribute to a better understanding of the deep-sea ecosystem dynamics, conservation and the utilization of deep-sea derived fungal taxa as valuable genetic resources.

5 研究科共同セミナーの認定科目です

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