Understanding the many functions of wood-degrading bacteria in the termite gut

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Abstract

The termite gut is the world's smallest bioreactor and the most efficient system for breaking down biomass. To learn how this mini-digester might one day be scaled up to a technologically meaningful level, researchers examined the structure and function of the gut microbiomes from 11 termite genera which were grouped by diet into plant-fiber feeders and soil feeders. Both groups had similar bacterial flora. But subtle differences did emerge, with each termite species harbouring a unique set of genes encoding for breaking down plant biomass. Future metagenomics studies could help refine the specific functions of different bacterial genes within the termite gut, allowing for better insight into the termite–bacteria relationship and teasing out capabilities that could help bring these microscopic reactors to the macroscale.