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TITLE:

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ABSTRACT

Temporal changes in microbial community structures during methanogenesis were investigated in cultures of South Sumatra Basin (SSB) coalbed methane (CBM) formation water (SSB5) grown on three coals of different rank (Burung sub bituminous Rv 0.39%, Mangus sub bituminous Rv 0.5%, Mangus anthracite Rv 2.2%). Methane production accelerated from day 6, peaked around day 17 and then levelled off around day 20. The initial bacterial community from the SSB formation water was predominantly *Acetobacterium*, *Acidaminobacter*, *Bacteriodes* and *Pelobacter* species, while the archaeal community consisted of *Methanosaeta*, *Methanosarcina* and *Methanobacterium* members. A general pattern was observed in all cultures with the three coals. Over time the bacterial members decreased in proportion whereas the archaeal component increased. The increase in the proportion of archaeal methanogens corresponded with an increase in methane production yield.

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