

ABSTRACT

Coal bed methane is an important, environmentally protector and clean fuel for energy purpose. Coal bed methane generally called natural methane adsorbed into the solid matrix of coal. Natural gas in coal can be generated through thermogenic as well as biogenic with the involvement of microbial degradation process. Biogenically natural gas produced at shallow depth at the temperature less than 100°C. There are certain factors which control the microbial generation of natural gas in coal beds. These factors are bioavailability of coal carbon, presence of bacterial community to convert coal carbon into methane and an environmental supporting bacterial growth and methanogenesis. Large coal deposits can be utilized to generate methane gas, a clean source of energy instead of burning of oil and coal. Bacterial species are responsible for this type of activity and utilize coal carbon for generating biogenic methane. Experimentally many researchers have proved the microbial conversion of coal into methane. Coal bed methane for instance, has been believed for many years to have thermogenic as well as biogenic origin through degradation of organic matter during the early stages of coalification. Recent studies show that coalbed methane may also be of more recent biogenic origin, produced through bacterial conversion and utilization of complex carbon compounds. Environmental features such as formation water chemistry, coal rank and regional geology have been used as indirect indicators of biogenic methane production potential. Methanogenic bacteria produce methane from precursors such as acetate, hydrogen and carbondioxide. These precursors are produced from coal through metabolic action of microbial species. Coal samples are mixed with microbial inocula and different types and levels of nutrient amendments. After 30 days reaction period at room temperature, head space methane was analyzed using gas chromatography.