



Figure 3 The results of GC analysis. Peak seen is showing the peak of hydrogen.

Hydrogen produced by the BC I + II 0.075% (very low) because the fermentation is done in a very low concentration substrate. The results of GC analysis for all treatments are not shown but is almost equally under 1%. This is because more produce acetic acid, in the liquid products. In the anaerobic metabolic pathway, a secondary metabolite product more than the product of primary metabolites. Secondary metabolites are the gas and liquid. The product gas is a mixture of methane, carbon dioxide and hydrogen. In the biogas process, at an early stage approximately the first 2 weeks at most gas composition is carbon dioxide. The composition of the low methane. After 2 weeks the composition of reduced carbon dioxide and methane increases. Anaerobic process takes a long time to produce gas. In this study, the fermentation time was only 3 days, the possibility of the gas composition is the most carbon dioxide and methane to hydrogen low due to the incubation time is just 3 days so that the carbon dioxide in the product is dominated by CO₂. While low hydrogen and methane. It can be concluded that in order to produce gas in large quantities, it can take a long fermentation and is expected to contain a lot of hydrogen gas composition.

There are many strains of *Bacillus circullans* that have been found by previous researchers. *Bacillus circullans* DZ 100 found by (Benkiar et al, 2013) [7] as a producer of protease enzyme. *Bacillus circullans* also found as a producer of biosurfactant [8][9]. Other strain can produce xylanase enzyme [10], lipase enzyme [11], polyhydrxy alcanoot (PHA) [12] PHB [13] and others. But it has not been found circullans bacillus that produces hydrogen. It was concluded that *Bacillus circullans* found from this research is a new strain of *Bacillus circullans*.