









soil tend to be acidic. The changes of fiber content are used to calculate decomposition velocity on the next section.

#### 4.4. Decomposition Velocity

Decomposition velocity referred to this studied is amount of decreasing fiber content (%) during interval time curing period (days). Relation between curing periods to decomposition velocity with various addition aerobic decomposer bacteria showed on Fig. 4. Decomposition velocity on each variation specimen is increasing during 14 days curing period. But the decomposition of specimen without addition bacteria is slower than specimen with addition bacteria.

During 14 until 28 days curing period, decomposition velocity is decreasing significantly on the specimen with addition bacteria (10%, 20%, and 30%). It is indicated that almost decomposer bacteria die during this period. As discussed before, tight competition between bacteria to stay alive and decreasing amount of nutrition causing many bacteria become dead. Even though the bacteria addition increasing, there will be no different result if the amount of nutrition is same. Besides that, addition bacteria solution larger than 10% causing the puddle getting thick and diffusion access of O<sub>2</sub> gas to reach peat soil become more difficult. Thus, the specimen environment is dominantly anaerobic. While the aerobic bacteria activities might be less in the anaerobic environment. The live bacteria would be breed again and decomposed fiber to its metabolism activities. Therefore, decomposition velocity is increasing again on 49 and 56 days curing period. Based on the decomposition velocity analysis of specimen with addition bacteria, the optimum addition is 10% solution from wet unit weight of peat soil.

TABLE V: Decomposition Velocity Calculation Results

%Addition Bacteria	Decomposition velocity (%fiber/days) on curing period				
	0	14	28	49	56
0%	0.00	0.29	0.19	0.00	0.38
10%	0.00	0.67	0.00	0.35	0.10
20%	0.00	0.62	0.00	0.10	0.29
30%	0.00	0.57	0.00	0.32	0.48

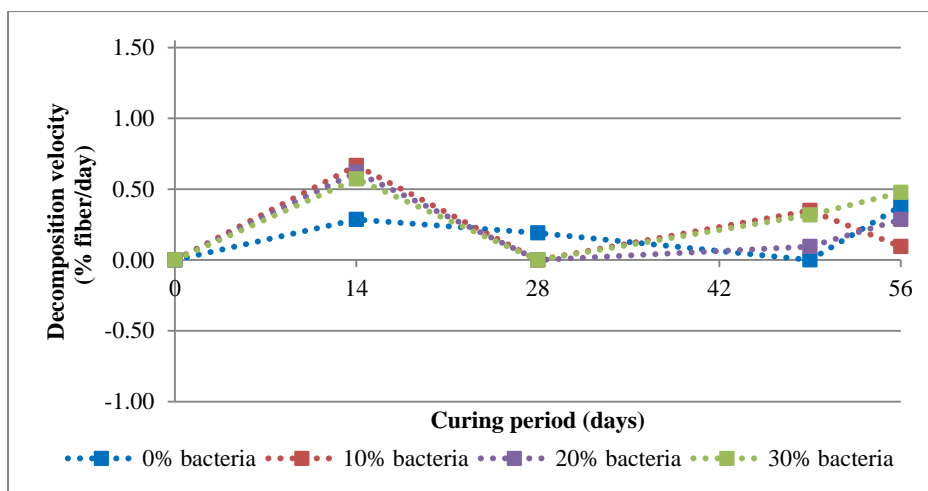


Fig. 4: Influence of addition bacteria and curing period to the decomposition velocity

On the other hand, decreasing velocity of specimen without addition bacteria is slow or not significant. Decomposition velocity is decrease slowly during 14 until 49 days curing period. It means that competition of bacteria to stay alive less than specimen with addition bacteria. Then the alive bacteria is breed again and decomposition process increasing again during 49 until 56 days curing period.

## 5. Conclusion

The studied peat soil from Bereng Bengkel village, Palangkaraya, Centre Kalimantan classified as sapric from its fiber content, highly acidic based soil pH, and moderately absorbent based water absorbent capacity. The adding aerobic decomposer bacteria consortium as stabilization method causes decreasing fiber content and increasing decomposition velocity which the optimum value reached on 14 days curing period. During that curing period, the amount of dissolved CO<sub>2</sub> gas into water larger than released CO<sub>2</sub> gas into air then specimen pH become more acidic. Soil pH, fiber content, and decomposition velocity are affected by bacteria life cycles. The optimum percentage adding aerobic decomposer bacteria consortium is 10% from peat wet weight.

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## 7. References

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