

# B01 - Diversity and role of soil fauna in litter decomposition in various types of ecosystems in Jambi



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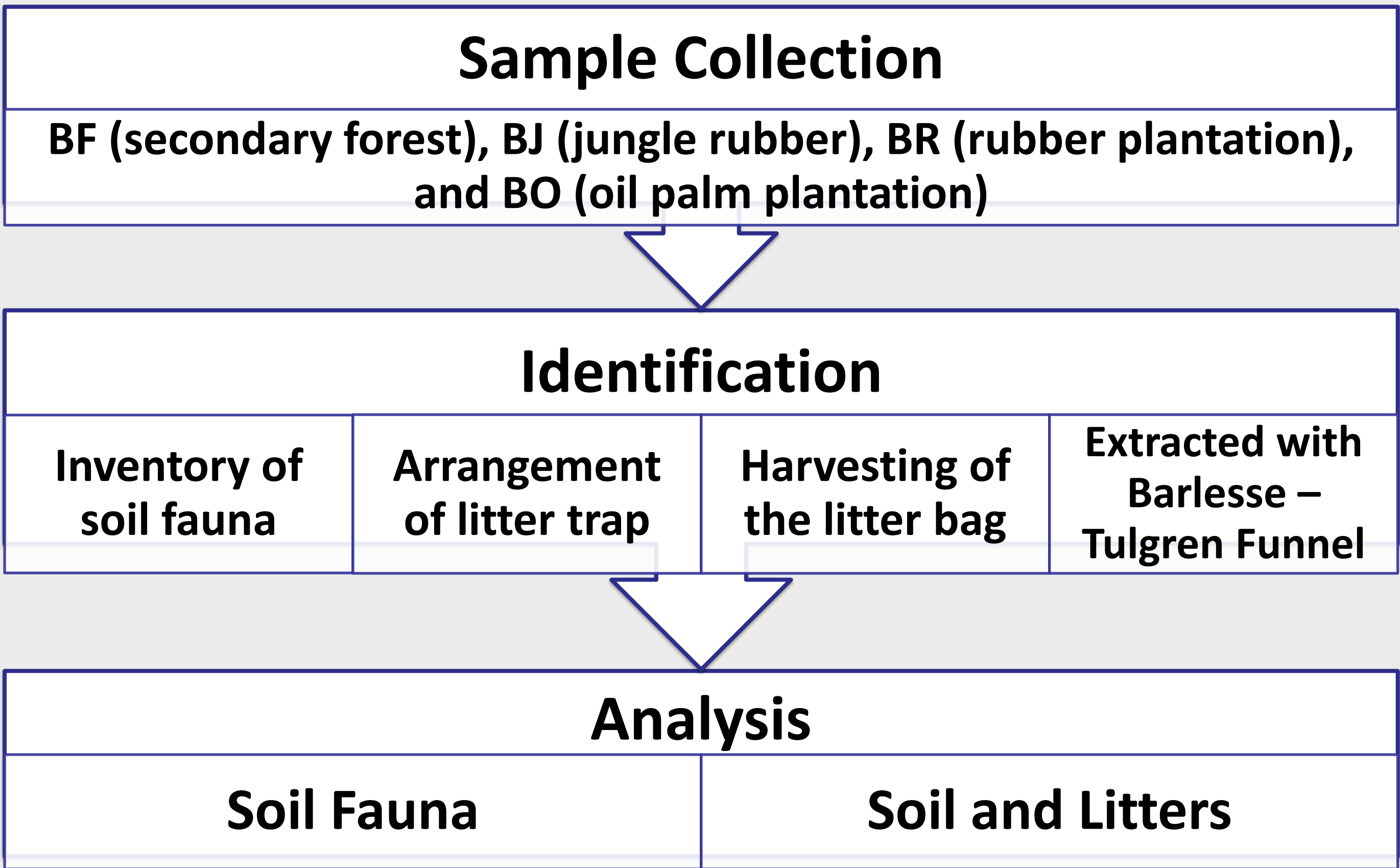
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## SUMMARY

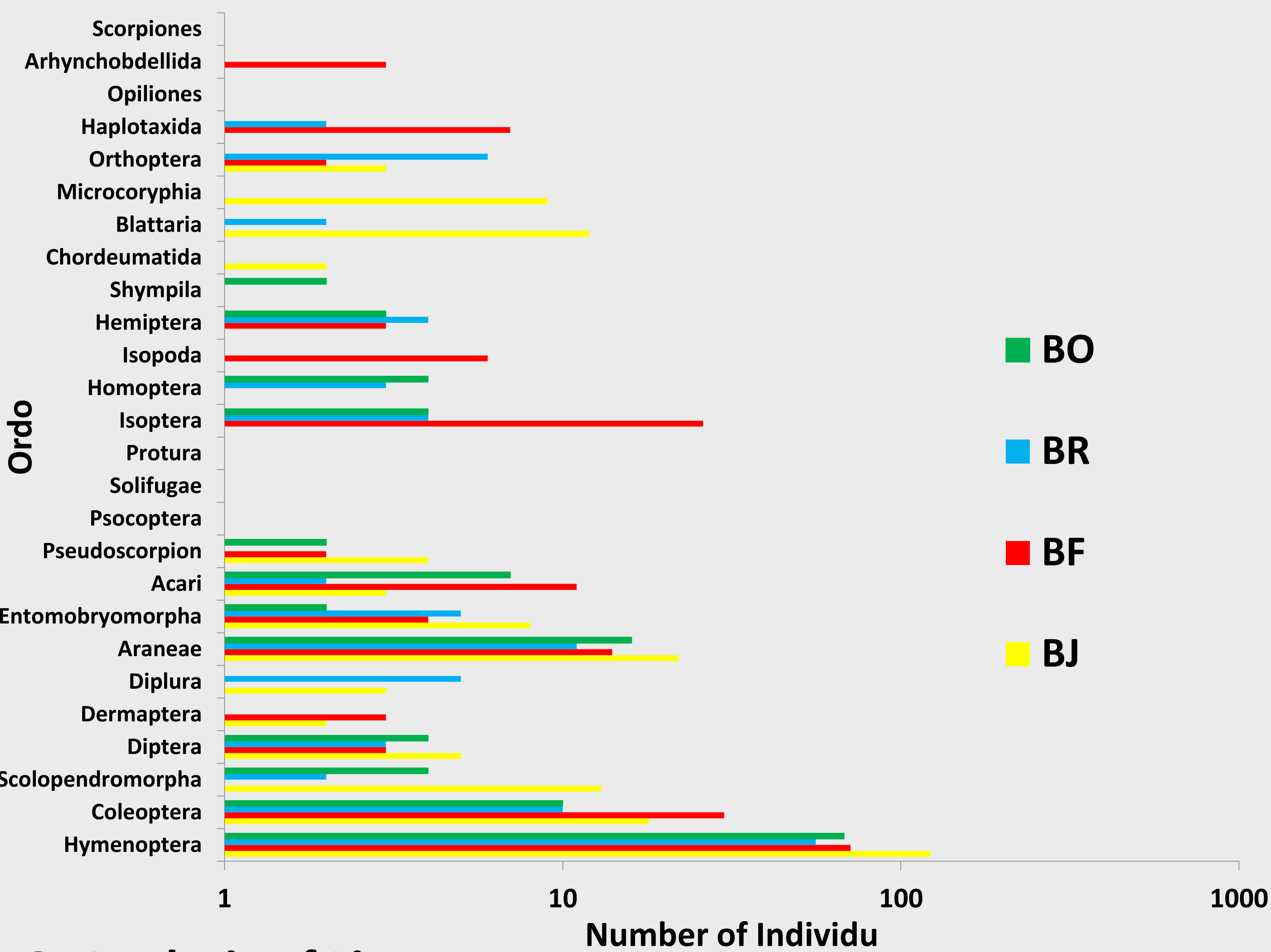
Change of forest into plantation constitutes one of the forest ecosystem disturbances, which could affect the survival of soil fauna. Therefore, there is a need for information concerning environmental quality of an ecosystem, and soil fauna diversity could be used as one of the indicators for environmental quality. The ecosystems being studied in this research could be used to describe the change of function from forest to non forest, in village of Bungku, the province of Jambi. The objectives of this research were explaining the diversity and role of soil fauna in litter decomposition in various types of ecosystems, namely secondary forest (BF), jungle rubber (BJ), rubber plantation (BR) and oil palm plantation (BO). Decomposition rate in the four ecosystems during 12 weeks period exhibited differing values. The highest rate of litter decomposition in each ecosystem occurred between period 1 and 2 (from week -2 up to week -4). Decomposition rate was more rapid in the initial weeks and tended to decrease in line with the decreasing amount of litter in each week. Existence of soil fauna helped very much the decomposition rate in each ecosystem as decomposer. The C/N ratio is also shown to get some idea on the decomposition stage of the litters. Lighter soil texture (sandy clay loam as compared to clay) of secondary forest might be one of the factors which contribute to the higher abundance of soil fauna.

**Keywords:** Decomposition rate, forest, litter, oil palm plantation, soil fauna

## METHOD



## 2. Diversity of soil fauna

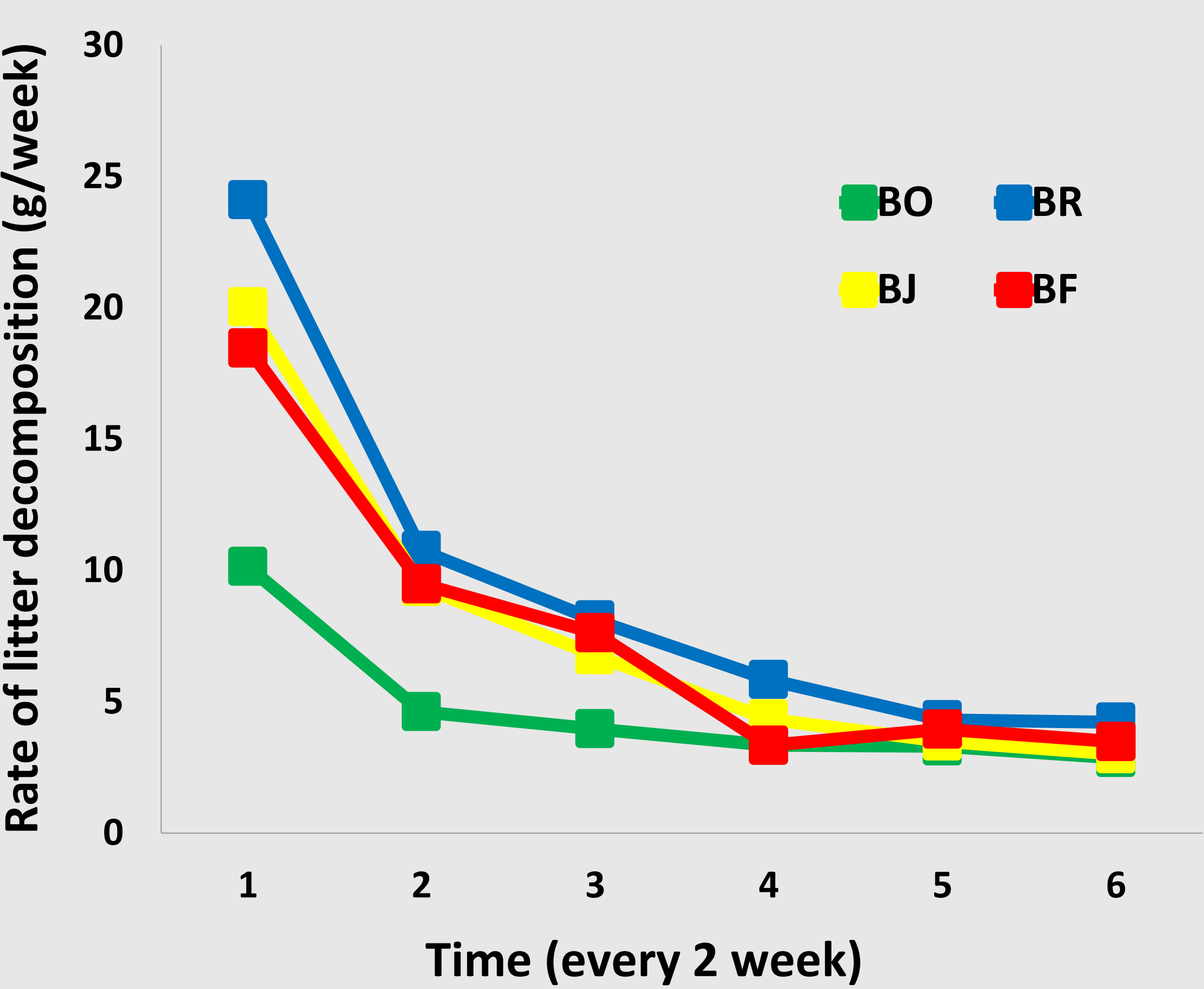


## 3. Analysis of Litter

| Code                | Time (week.....) | C.org (%) | N (%) | C/N (%) |
|---------------------|------------------|-----------|-------|---------|
| Jungle Rubber       | 0                | 53.61     | 0.94  | 57.03   |
|                     | 2                | 54.65     | 2.27  | 24.07   |
|                     | 4                | 53.73     | 1.08  | 49.75   |
|                     | 6                | 52.41     | 2.26  | 23.19   |
|                     | 8                | 51.39     | 2.26  | 22.74   |
| Secondary forest    | 0                | 55.00     | 1.08  | 50.92   |
|                     | 2                | 55.89     | 1.08  | 51.75   |
|                     | 4                | 52.53     | 0.94  | 55.88   |
|                     | 6                | 47.63     | 1.06  | 44.93   |
| Rubber plantation   | 0                | 54.06     | 0.99  | 54.61   |
|                     | 2                | 51.26     | 1.15  | 44.57   |
|                     | 4                | 50.25     | 1.15  | 43.69   |
|                     | 6                | 45.23     | 1.10  | 41.11   |
| Oil palm plantation | 0                | 49.30     | 1.29  | 38.22   |
|                     | 2                | 47.89     | 1.31  | 36.56   |
|                     | 4                | 49.19     | 2.27  | 21.67   |
|                     | 6                | 49.08     | 1.17  | 41.95   |
|                     | 8                | 46.34     | 0.96  | 48.27   |

## RESULTS

### 1. Rate of Litter Decomposition



## ACKNOWLEDGEMENTS

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