

## Use of *Euphorbia tirucalli* against termites

## 1. Summary

*Euphorbia tirucalli* is of the recognized Euphorbiaceae family of an isoprenoid constituents (Duong et al., 2019). It possesses 2,160 species, driving the plant to be the third utmost generation of angiosperms, after *Astragalus* (Fabaceae) and *Psychotria* (Rubiaceae) (Ernst et al., 2015). *Euphorbia* has sticky white latex considered in traditional medicine with phenolic acid, flavonoid contents, phytochemical compounds, and the phenolic constituent for the latex that could serve much in cancer treatment (Abdel et al., 2019). As revealed in medicine, the researches still disclose the positive effect of *Euphorbia tirucalli*, in agriculture system, especially on its physico-chemical properties, where the plant latex extract contribute much against nematode, and could replace synthetical products (Kalaiselvi et al., 2019). In the Eastern part of Rwanda, farmers plant *Euphorbia tirucalli* around the fences of their houses and their agriculture compounds. The Albertine Rift Conservation Society (ARCOS) working on soil conservation, reinforced the practice of *Euphorbia tirucalli* with crops association at the beginning and thin them at total germination to avoid competition and inhibit the apparition of termites which are the cause of yield losses.

## 2. Procedure

Tree seedlings are associated with cutting tubes of *Euphorbia* plant. At “Diameter at the Breast Height” (DBH), *Euphorbia* will be removed to avoid nutrients and moisture competition of two plants. To prevent termites from crop damages on the roots of plants, *Euphorbia* has a positive beneficial impact on crops when planted around the farm plot, and reduces crop losses.



Picture 1: Diameter at the Breast Height stage

The shrub is planted on margine land especially where termites have invaded but are also planted around the farmer’s plots to prevent from termites attacks. *Euphorbia tirucalli* is known to be a drought tolerant plant due to its photosynthetic characteristic (Zhang et al., 2019).



Picture 2: *Euphorbia tirucalli* live fence

## 3. Soil and climate condition

The plant spreads very quickly, producing a lot of biomass even in very nutrient-poor soils and in difficult climatic conditions. Their cuttings and stem tubes spread very fast and cover up the soil.



Picture 3: Invaded *Euphorbia* in arid and margin soil

*Euphorbia tirucalli* is recognized in high drought-tolerant plant species with potential for significant environmental and crop protection utility (Abuelsoud et al., 2019).

## 4. Benefits

### 4.1. Agriculture

- ✚ Anti-fungal activity
- ✚ Ant-insecticidal activity
- ✚ Larvicidal activity

### 4.1. Medicine

- ✚ Antioxidant activity
- ✚ Molluscicidal activity
- ✚ Mutagenic activity
- ✚ Proteolytic enzyme activity
- ✚ Tumor promotion activity
- ✚ Anti-arthritic activity
- ✚ Anti-herpetic activity

Considering the positive effects of Euphorbia, science is still exploring to make useful the plant, due to its unique chemical structure and strong effects in the ecosystem and human health. Farmers have benefited the best environmental friendly method against termites, and it is the best way for plots delimitations. The environmental drivers are designed to reduce the use of chemical products that have been producing abundantly the adverse effects. Some of medicinal and anti-pesticide plants do not have the characteristics of growing under hard conditions, and as indicated Euphorbia tirucalli would respond even on margin soil and do not demand much rainfall. The environmental and economic responses of this plant should be a weapon replacement of chemical pesticides.

## 5. Reference

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