

Researchers:

ASSOC. PROF. DR. ABDUL HAFIZ AB MAJID

Yeoh Xue Li

Lim Li

Abd Hafis Abd Rahim

▶ **TRADE SECRET (TS/10/2019/048)**

▶ **PATENT NOVELTY SEARCH: NOVEL, INVENTIVE & INDUSTRIAL APPLICABLE**



A DUAL ACTION COFFEE-BASED ANTS BAIT: IMPLICATION FOR SUSTAINABILITY GREEN PEST MANAGEMENT

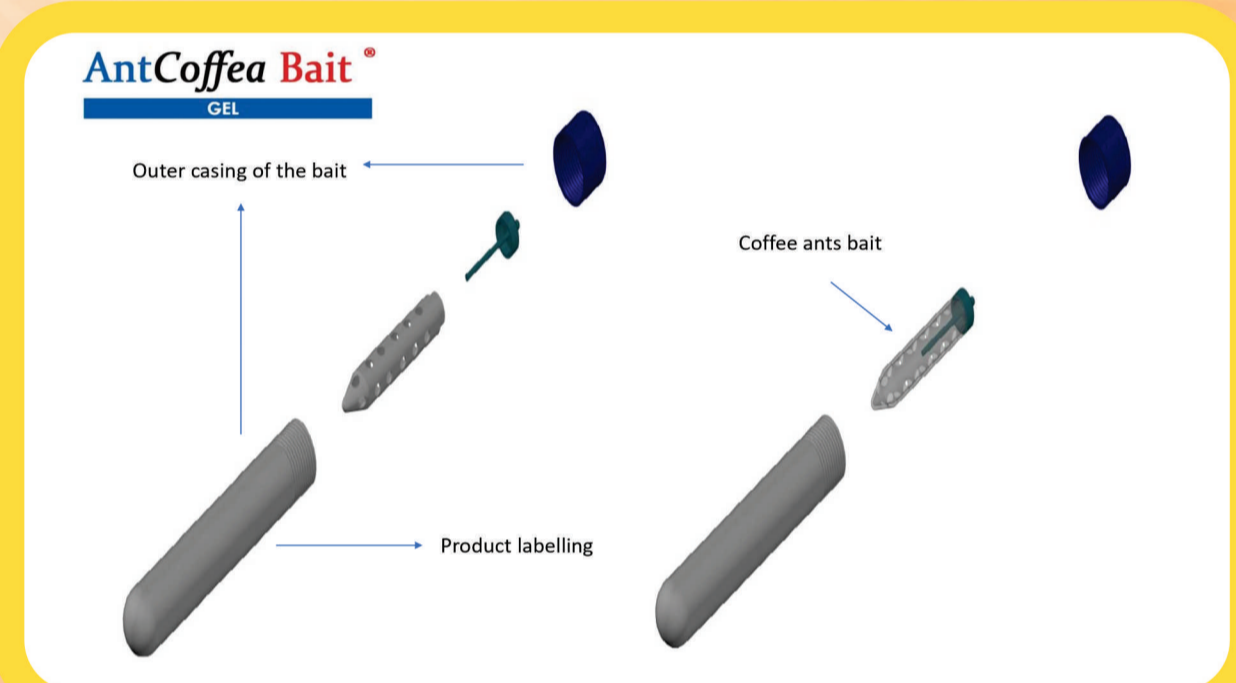


Problem Statements

- Household ants are a significance household pest, where baiting is considered a more effective measure as it can eliminate the entire colony through trophallaxis among the individual ants
- The replacement of synthetic products that is impregnated within the gel bait with coffee extract (plant-based products) which possess similar insecticidal and repellence properties, can reduce environmental issues that brought by the synthetic products

Novelty and Inventiveness

- The Arabica coffee extraction used in this product which is plant-based bio-pesticide, do not pose any toxic effect to human or animals and it is biodegradable
- The Arabica coffee contain natural compound known as "undercane" which is known as a natural attractant for the ants



Applicability

- This product is a dual action bait, which can work as repellent and attractant, to the household ants
- Environmentally friendly and targeted solely to household ants

Product/Technology Readiness

- TRL 5: Large scale prototype

Research Achievement

- Five scientific publications (3 SCOPUS/ISI Journal and 2 Non-ISI Journal)
 - Journal of Asia Pacific Entomology (2)
 - Journal of Tropical Agriculture Science (1)
 - Journal of Entomology and Zoology Studies (1)
 - International Journal of Entomology Research (1)
- Graduated students: 1 Ph.D, 2 Master and 4 Undergraduates
- Financial supported by
 - KPM-FRGS (203 / PBILOGI / 6711360) RM 89,800 (National)
 - Rui Grant (1001/PBIOLOGI/811241) RM 150,000 (University)
 - Industry Grant (304 / PBILOGI / 6501012/ A147) RM 9,225 (Industry)



Intellectual Property

- Trade secret protection under Universiti Sains Malaysia (USM)
- Patent novelty search: novel, inventive and industrial applicable

Commercialization Potential

- This product can be produced in high quantity with very low-cost manufacturing
- The selling price will be cheaper compared to the current commercial product in the market
- The product can be a potential competitor to other existing product for controlling household ant's infestation
- Industry collaboration with HESRC Sdn.Bhd & Ensystex Sdn Bhd (Industrial Partner)



Level of impact

- The used of coffee extract from Arabica coffee as the inner active ingredient with delayed toxicity can guarantee maximum distribution of the bait within the colony before the ants start showing signs of mortality
- This product is an example of green and eco-friendly technology product
- This product could open new opportunity for SMEs with consolidation of both food market and pest control industries (unique on its own)

Presentation and Other Strength

- This product show a significant reduction of household ant's infestation up to 60 days after treatment whilst no significant difference is shown with other commercial ant bait product used as comparison



Contact Person:
ASSOC. PROF. DR. ABDUL HAFIZ AB MAJID

School of Biological Sciences, Main Campus
Universiti Sains Malaysia, Penang, MALAYSIA

Tel: +604-653 4893 Fax: +604-625 5125 E-mail: abdhafiz@usm.my