

# Value-added utilization of processed products from weeds in organic orchards of sod culture

1. **Developing Staff Members** : Value-added utilization of processed products from weeds in organic orchards of sod culture

## 2. Developing Staff Members

| Department     | Name            | Position            |
|----------------|-----------------|---------------------|
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| Plant Industry | Chia-Chung Wang | Graduate student    |

## 3. Development Idea

The purpose of this experiment is to encourage organic farmers to carry out good grass cultivation management, and on the other hand, to use the grass after weeding to develop into diversified commodities, which can not only reduce the production cost of commodities, but also increase the value of commodities. effect.

## 4. Technological Competition and

### Industrial Application

The developed products are mouthwash, antipruritic cream, tea bags and sparkling water, and the antibacterial ability ( mouthwash ) and antioxidant capacity ( antipruritic cream, teabag and sparkling water ) of the newly developed products are tested. The results showed that the original inoculated amount of *Staphylococcus aureus*

in the mouthwash was  $3.8 \times 10^5$  CFU/ml. After 30 minutes of testing, the bacterial amount of the sample was  $4.7 \times 10^5$  ( CFU/ml ) , and the sterilization rate was  $3.8 \times 10^5$  CFU/ml. <1%, but the original inoculum of *Pseudomonas aeruginosa* was  $2.1 \times 10^5$ CFU/ml. After 30 minutes of testing, the remaining bacterial volume of the sample was  $1.0 \times 10^5$  ( CFU/ml ) , and the sterilization rate reached 50.5% , it shows that the inhibitory effect of the mouthwash on *Staphylococcus aureus* is not ideal, but the inhibitory effect on *Pseudomonas aeruginosa* is good. The measured DPPH (  $\alpha, \alpha$ -diphenyl- $\beta$ -picrylhydrazyl ) of the new tea bags, sparkling water and antipruritic ointment products were 68%, 0 0% and 0%, respectively, indicating that the new tea bags have higher antioxidant capacity. The finished products of sparkling water and anti-itch cream do not have antioxidant capacity. At present, different grass species are still used for formula modification to enhance its antioxidant capacity.

## 5. Merchandise Statement of Achievement

The new formula products developed in this experiment are mouthwash, antipruritic ointment, sparkling water and tea bags. Preliminary tests of their finished products show good efficacy. However, this

experiment is only a research on the use of organic orchard grass seeds. In fact, In organic orchards, there are other common grass cultivated, such as red leaf gypsophila, fenugreek, centella asiatica, etc., which are not only commonly used Chinese herbal medicines, but also have great potential for reuse in the future. If they can be reused and developed into New products can not only be friendly to the environment, but also play the role of circular economy.



Fig 1 : The excellent herbaceous cultivated grass species - 1.



Fig 2 : The excellent herbaceous cultivated grass species - 2.



Fig 3 : Products developed from weed-tea and jelly.



Fig 4 : Products developed from weed-itcing cream.



Fig 5 : Products developed from weed-mouthwash.