

Analysis of Natural Extracts Used in Vaccine Adjuvants for Antiviral and Immune Enhancement

1. Title of Research : Analysis of Natural Extracts Used in Vaccine Adjuvants for Antiviral and Immune Enhancement

2. Cross-School Research and

Development Team Members

Department	Name	Position
Graduate institute of animal vaccine Technology	Chung, Yao-chi	Associate Professor
Department of Microbiology, Immunology , and Biopharmaceuticals	Weng, Bor-Chun	Associate Professor
Country Best Biotech., Ltd.	Lin, Jian-hong	Chairman

3. Content of Cross-School Research and

Development

To effectively utilize the technological energy and resources of a tripartite collaboration, the Department of Microbiology, Immunology , and Biopharmaceuticals at National Chiayi University, along with the Graduate institute of animal vaccine Technology at National Pingtung University of Science and Technology, support facilities and equipment. This collaboration extends to Country Best Biotech., Ltd. for the commercialization of

technology, research, technical services, and consulting, aiming to promote industrial advancement and strengthen exchanges and cooperative opportunities between industry and academia, as well as enhance professional knowledge and skills. Chiayi University provides a natural extract, " Alpinia zerumbet oil, " known for its excellent bioactivity and metabolizability, making it a new choice for adjuvants. National Pingtung University of Science and Technology utilizes " Alpinia zerumbet oil " to develop a new type of vaccine adjuvant aimed at enhancing the vaccine's immunostimulatory effect. Compared to traditional aluminum salt adjuvants, this new adjuvant is expected to elicit stronger cellular and humoral immune responses. Further collaboration involves Country Best Biotech., Ltd., focusing on the application analysis and quality control of this adjuvant to ensure its safety and efficacy.

4. Description of Industrial Needs and

Research Result Applications

The adjuvant technology of this project holds significant commercial potential and can be applied in the future to the development of vaccines for poultry and

other animals. It aims to produce more effective biological preparations for the prevention and control of diseases, thereby reducing economic losses in related industries and making a substantial contribution to the domestic economy and prevention efforts. The research experience from this project can also be integrated into future teaching activities of both parties, cultivating students' practical experience in developing adjuvants and biological preparations. This will nurture outstanding professionals in vaccine research and development, thereby enhancing our country's pharmaceutical and biotechnology industry

5. Performance of Cross-School Research and Development

- (1) Commercialized Product Name: Animal Vaccine Alpinia Zerumbet Oil Adjuvant.
- (2) The commercialized oil-based adjuvant and its vaccine products will provide manufacturers with the oil-based adjuvant formula and testing analysis results, supporting them in testing and using a new generation of vaccines.
- (3) Next year, plans are in place to propose related industry-academic cooperation projects with manufacturers and apply for government-sponsored industry-academic collaboration projects or sign industry-academic cooperation agreements with manufacturers.



Fig 1 : Professor Weng, Bor-Chun from Chiayi University visited National Pingtung University of Science and Technology to discuss details of cooperation.



Fig 2 : The emulsified and mixed oil-based product is bottled for physical property analysis and stability analysis.

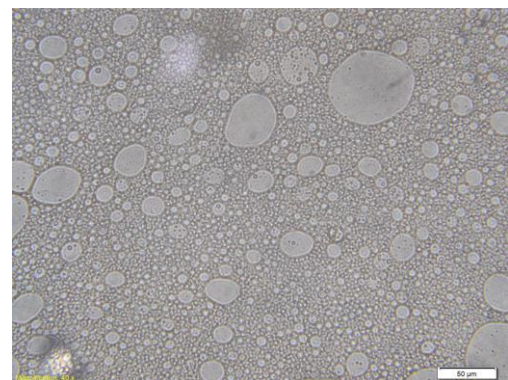


Fig 3 : The results of emulsification and mixing are observed and analyzed using a high-power microscope.