



## 利用常溫電漿技術降低飼料抗營養因子

發明人： 丁俞文 副教授

單位： 國立臺灣大學 食品科技研究所

簡歷： (可列出相關連結，例如系所、研究室網頁)

[https://www.fst.ntu.edu.tw/zh\\_tw/Facultymembers/Full\\_time/%E4%B8%81-%E4%BF%9E%E6%96%87-11215109](https://www.fst.ntu.edu.tw/zh_tw/Facultymembers/Full_time/%E4%B8%81-%E4%BF%9E%E6%96%87-11215109)



### 市場及需求：

雞隻的飼料組成有玉米、黃豆粉、其他穀物、營養補充品及酵素等。但在豆類及穀物中存在抗營養因子主要為胰蛋白酶抑制劑，會干擾多種酵素的分泌，造成吸收率變差，嚴重則影響腸道的消化吸收，致使動物對蛋白質的利用率下降造成生長受限甚至停滯。所以過量抗營養因子攝入對童子雞生長會顯著產生負面影響，使同日齡雞隻下降 6%，若達到相同體重需至少增加 3 天時間。事實上殘存之抗營養因子是無法避免的，若要完全根除，很可能就過度加熱，導致蛋白質變性，降低蛋白質的營養價值。

### 技術摘要：

對於胰蛋白酶抑制劑的清除是改善產品價值的重點之一，避免過度的負面影響。而傳統加工方法是利用高溫處理使蛋白質變性，但是會造成色澤變深、機能性成分含量降低的情況。為了避免上述缺點，以電漿既有的特性加入飼料製程，選定處理條件後在飼料營養成分保留、抗營養因子及酵素方面都有預期內的正向影響。

### 優勢：

1. 胰蛋白酶抑制劑下降
2. 產品營養價值提升。
3. 產品抗氧化能力提升。
4. 產品保留更多熱敏性物質。
5. 競爭對手不易複製技術。

### 競爭產品：

1. 福壽實業：各式禽畜飼料。
2. 台糖小雞飼料/台糖中雞飼料/台糖大雞飼料

### 專利簡述：

聯絡方式： 臺大產學合作總中心，Tel: 02-3366-9945，E-mail: [ordiac@ntu.edu.tw](mailto:ordiac@ntu.edu.tw)



## Reducing the anti-nutritional factor of chicken feed through atmospheric cold plasma

**PI :** Prof. Yu-Wen Ting

Department of Institute of Food Science and Technology,  
National Taiwan University.

### Experience:

[https://www.fst.ntu.edu.tw/zh\\_tw/Facultymembers/Full\\_time/%E4%B8%81-%E4%BF%9E%E6%96%87-11215109](https://www.fst.ntu.edu.tw/zh_tw/Facultymembers/Full_time/%E4%B8%81-%E4%BF%9E%E6%96%87-11215109)



### Market Needs:

Chicken feed is consisted of corn, soybean, grains, nutritional supplements and enzymes. The major anti-nutritional factor in legume and grains is trypsin inhibitor, which interfere with the secretion of a variety of enzymes and cause poor absorption. In severe cases, it will affect the digestion and absorption of the intestinal tract, resulting in a decline in the utilization of protein in animals, resulting in growth restriction or even stagnation. When excessive intake of anti-nutritional factors will have a significant negative impact on the growth of chickens. As a result, the weight of chickens at the same age was reduced by 6% compared with the control group. If they want to reach the same weight, they must be kept for at least 3 more days. In fact, the remaining anti-nutritional factors are unavoidable. If it is to be completely eradicated, it is likely to cause protein denaturation due to excessive heating and reduce the nutritional value of protein.

### Our Technology:

The removal of trypsin inhibitors is one of the key points to improve the value of the product to avoid excessive negative effects. The traditional processing method is to use high temperature treatment to denature the protein, but it will darken the color and reduce the content of functional components. In order to avoid the above shortcomings, the existing characteristics of plasma are added to the feed process. After selecting the processing conditions, the retention of feed nutrients, the reduction of anti-nutritional factors and enzymes have the expected positive effects.

### Strength:

1. Decrease in trypsin inhibitor
2. The nutritional value of the product is improved.
3. The anti-oxidation ability of the product is improved.
4. The product retains more heat-sensitive substances.
5. Competitors are not easy to copy technology.

### Competing Products:

1. Fwusow Industry: all kinds of poultry and livestock feed.
2. Taiwan Sugar Chicken Feed

### Intellectual Properties:

**Contact:** Center for Industry-Academia Collaboration, NTU      E-mail: ordiac@ntu.edu.tw