



Deutscher Tropentag, October 11-13, 2005, Hohenheim

“The Global Food & Product Chain—  
Dynamics, Innovations, Conflicts, Strategies”

## Effects of Different Processing Methods of Pigeon Pea (*Cajanus cajan*) on the Haematology of African Catfish (*Clarias gariepinus*) Larvae

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### Abstract

The need to substitute fishmeal in animal feed has necessitated the use of plant derived feedstuffs. Legume seeds have been highly favoured because of their rich protein composition, carbohydrate content, mineral content and widespread distribution in the tropics. However, only few of these plant proteins have been utilised and investigated. Problems of anti nutritional factors in these legumes have limited their widespread usage and direct incorporation into animal feeds. Different processing methods have been devised to remove or reduce the concentration of these factors. In this study *Cajanus cajan* was subjected to four different processing methods. These included milling raw, toasting, boiling and soaking. Effects of the different processing methods on the haematology of *Clarias gariepinus* larvae was evaluated. It was aimed at determining the best processing method(s) for optimum utilisation of pigeon pea meal for fish production. Twenty-one test diets were formulated to contain about 39.5% crude protein. The control diet was formulated with fishmeal at 55% dietary inclusion level. Five test diets each were formulated using four differently processed pigeon pea. While the dietary inclusion level of pigeon pea increased from 45–65%, the fishmeal inclusion level decreased from 41–33% in each of the four sets of experimental diets. The test diets were assigned randomly to triplicate groups of 7 fish in 10 l plastic aquaria. The average weight of fish was 0.46 g. The fish were fed at 5% body weight in two portions daily for eight weeks. They were weighed biweekly and the ration adjusted accordingly. Blood samples were collected from 10 representative fish at the start of the experiment. At the end, each dietary group was pooled and blood samples collected from 10 fish. These were analysed in triplicates. Results obtained showed that haematocrit (PCV), red blood cells count, white blood cells count and haemoglobin concentration decreased significantly ( $p < 0.05$ ) with increasing dietary levels of raw pigeon pea. Fish fed diets from other processing methods showed lower values than the control when compared with the initial status. Soaking for 16 hours enhanced best the fish weight gain and haematological values and seems to be the best processing method for *Cajanus cajan*.

**Keywords:** *Cajanus cajan*, *Clarias gariepinus*, haematology