# Potentials of Plant Polyphenol for Better Performance of Giant Freshwater prawn *(Macrobrachium rosenbergii)*

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Roll No: 0117/04

Registration No: 474

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science in Fisheries Resource Management

**Department of Fisheries Resource Management**
**Faculty of Fisheries**
**Chittagong Veterinary and Animal Sciences University**
**Chittagong-4225, Bangladesh**

**June 2018**

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**June 2018**

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This is to certify that we have examined the above Master's thesis and have found that the thesis is complete and satisfactory in all respects and that all revisions required by the thesis examination committee have been made

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DEDICATED TO
MY BELOVED
PARENTS

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# Abbreviation

| | | |
|---|---|---|
| PL | - | Post Larvae |
| FCR | - | Feed Conversion Ratio |
| cm | - | Centimeter |
| mg | - | Milligram |
| DoF | - | Department of Fisheries |
| Ltd. | - | Limited |
| Kg | - | Kilogram |
| FAO | - | Food and Agriculture Organization |
| CF | - | Condition Factor |
| CHO | - | Carbohydrate |
| Kcal | - | Kilocalorie |
| SE | - | Standard Error |
| SEM | - | Standard Error of Mean |
| SGR | - | Specific Growth Rate |
| < | - | Less than |
| > | - | Greater than |
| e.g | - | Example |
| et al. | - | And his Associates |
| etc. | - | Et cetera |
| g | - | Gram |
| % | - | Percentage |
| i.e. | - | That is |
| Sig. | - | Significance |
| Ref. | - | Reference |
| MS | - | Master of Science |
| CVASU | - | Chittagong Veterinary and Animal Sciences University |

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# Abstract

Giant freshwater prawn (*Macrobrachium rosenbergii*) is an important and highly valued product for international market and almost all Bangladeshi prawns are therefore exported. An experiment on potentials of plant polyphenols for better performance of farmed giant prawn was conducted for five months. Polyphenol is a natural sugarcane plant extract from *Saccharum officinarum* which is rich in minerals and nutrients, also has anti-inflammatory and anti-bacterial properties. In this experiment (growth performance, survival rate, Feed conversion ratio (FCR), proximate composition) were observed. Four different percentage of polyphenol supplemented feed 0% (0 mg/ kg feed), 0.2% (60mg/kg feed), 0.4% (120mg/kg feed), 0.6% (180mg/kg feed) were supplied named $T_0$(control), $T_1$, $T_2$, $T_3$ treatment respectively. Each treatment was three replications. Post larvae of prawn were stocked for the experiment which initial length was 2cm. In experiment, it was found that prawn showed better growth performance at $T_3$ polyphenol supplemented feed. In this treatment prawn reached length up to 6.27(±0.51) cm, where 5.22(±0.48) cm at $T_2$, 4.99(±0.26) cm at $T_1$, and 4.85(±0.13) cm at control. And the average weight were (2.13±0.19) g at 0.6% polyphenol supplemented feed, where 1.16(±0.24) g at 0.4%, 1.12(±0.19) g at 0.2% and 0.89(±0.10) g at control. The FCR value were 2, 1.85, 1.86, 1.15 for $T_0$, $T_1$, $T_2$, $T_3$ respectively. And the values of protein content were 8.88, 15.54, 17.71, 14.45 for $T_0$, $T_1$, $T_2$, $T_3$ respectively. Specific growth rate found in $T_0$, $T_1$, $T_2$, $T_3$ treatment groups were 0.26±0.14, 0.35±0.05, 0.31±1.4, 0.49±0.22 respectively. And the condition factor were 0.78±0.03, 0.89±0.03, 0.81±0.06, 0.87±0.13 in $T_0$, $T_1$, $T_2$, $T_3$ supplemented treatment groups respectively. During the research period no mortality was recorded due to any kind of diseases and contamination. Thus also support that polyphenol increase survival rate. Polyphenol may also have nutritive properties which influenced growth performance at freshwater prawn.

Key words: Polyphenol, Freshwater prawn, Growth performance