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**POTENTIALS OF PLANT POLYPHENOLS FOR BETTER PERFORMANCE OF FARMED PUNGAS (*Pangasius hypophthalmus*)**

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Roll No.: 0117/02

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

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**Abstract**

Bangladesh is well known for small-scale freshwater aquaculture as she has the third largest aquatic biodiversity in Asia, worlds’ largest flooded wetland and Pungas (*Pangasius hypophthalmus*) has a good contribution to the total fisheries production of Bangladesh as the fish can be stocked and cultured at higher densities. This study was to determine the performance of bioactive compound known as ‘polyphenol’ in ‘pungas culture’ using data collected from the fish farm named as ‘The Halda Fisheries Ltd., Potenga, Chittagong’. This experiment was conducted using natural bioactive additive ‘polyphenol’ from sugarcane plants (*Saccharum officinarium*) which has the potential to replace some of the functions of feed additives as it contains antioxidants, minerals, nutrients, essential amino acids and also exerts anti-inflammatory and anti-bacterial properties. Polyphenol was added with the feed ingredients at different concentration (0% polyphenol [treatment-0, T0], 0.2% polyphenol [treatment-1, T1], 0.4% polyphenol [treatment-2, T2] and 0.6% polyphenol [treatment-3, T3]). The fishes were cultured for 4 months dividing a pond into 16 cages (4 cages per treatment). Initial mean weight and mean length of the fishes was 4.74g and 5 cm respectively. The final weight was measured 39.93±0.75 g in T0, 53.61±7.88 g in T1, 43.77±2.66 g in T2 and 45.14±3.04 g in T3. The proximate composition of fishes in treatments was analyzed in laboratory of Faculty of Fisheries in ‘Chittagong Veterinary and Animal Sciences University’. Diet including 0.2% polyphenol increased mean weight, weight gain than the diet without polyphenol (p<0.05). Diet having 0.2% polyphenol showed better mean length and length gain than the diet without polyphenol (p<0.05). FCR value of the prepared feed was determined and the research concluded that fishes provided with ‘Treatment-1(T1)’ feed has higher and even growth (by weight and length) in comparison with other treatments. Therefore, polyphenol is recommended as important feed additive for better growth of pungas fish.