

**ASSESSMENT OF HEAVY METAL CONCENTRATION IN POULTRY EGG AND MEAT SAMPLES COLLECTED FROM CHITTAGONG CITY**

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**degree of Master of Science in Food Processing and Engineering**

**Department of Food Processing and Engineering**

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**Chittagong Veterinary and Animal Sciences University**

**Chittagong-4225, Bangladesh**

**December 2016**

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**The Author**

**December 2016**

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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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**December 2016**

***Dedication***

***DEDICATED TO MY RESPECTED AND BELOVED PARENTS, HUSBAND AND TEACHERS***

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# List of Abbreviation

|  |
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| Abbreviation Elaboration |

**%** Percentage

**°C** Degree centigrade

**Μg** Microgram

**mg/L** Milligram per liter

**mg/kg** Milligram per kilogram

**gm** Gram

**μm** Micrometer

**PPm** Parts per million

**μg /dl** Microgram per deciliter

**SD** Standard deviation

**IDF** International Dairy Federation

**SCAN** Scientific Committee on Animal Nutrition

**ATSDR** Agency for Toxic Substances and Disease Registry

**IPCS** International Program on Chemical safety

**IARC** International Agency for Research on Cancer

**MTL**  Maximum Tolerable Limit

**Fig** Figure

**FAO** Food and Agriculture Organization

**WHO** World Health Organization

**Abstract**

The present study was carried out to determine the heavy metal concentration in poultry egg and meat samples. The egg and meat samples were collected from five layer and broiler farms in Chittagong. A total number of 25 samples for egg and 25 samples for meat were collected. Heavy metal generally found in environment through fossil fuels combustion and indiscriminate waste management. The selected heavy metal such as lead and chromium concentration was determined by atomic absorption spectrophotometer. The mean concentration of lead and chromium in egg white and egg yolk were found 0.813-3.213 mg/kg, 1.050-4.702 mg/kg, 5.29-7.614 mg/kg and 3.326-6.808 mg/kg. Otherwise the mean concentration of lead and chromium in meat were 0.228-0.290 mg/kg and 0.048-0.112 mg/kg.The comparison between reference value with mean value of different farm for egg white showed that lead was significantly different in farm A and farm E (p<0.05) and lead was not significantly different in farm B, farm C and farm D (p>0.05).Otherwise chromium concentration was significantly different (p<0.05) in all farms.The result clearly indicate that for egg yolk lead was not significantly different (p>0.05) in all farms but chromium was not significantly different (p<0.05) in case of all farms except farm D (p<0.05).Otherwise the comparison indicates that for meat samples lead was not significantly different (p>0.05) in all farms except farm B (p<0.05) but chromium was significantly different (p<0.05) in case of all farms .In present study all samples of egg exhibit high concentration above tolerance limit which alarming but meat samples showed lower concentration than permissible limit which is safe to human health. For reducing alarming condition need regular examination of poultry egg before coming into the market.

**Keywords**: Heavy metal, assessment, egg, meat, lead, chromium, public health.