SEX DETERMINATION OF CATTLE (*Bos taurus*) EMBRYOS FOLLOWING IN VITRO FERTILIZATION USING SEMEN SEXING KIT

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ABSTRACT

GUZMAN, CHENNY DHANRYLL M., Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JUNE 2019, SEX DETERMINATION OF CATTLE (*Bos taurus*) EMBRYOS FOLLOWING IN VITRO FERTILIZATION USING SEMEN SEXING KIT.**

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It has been claimed that frozen-thawed bovine semen treated with commercially produced kits, Heiferfocus™ (in favor of female gender) and Bullfocus™ (in favor of male gender), increases the birth chance of bovine with desired sex by at least 20–25%. Therefore, this study was conducted to investigate on the efficacy of the semen sexing kits Heiferfocus™ and Bullfocus™, through sex determination by Polymerase Chain Reaction (PCR). Two sets of PCR primers were used to determine the sex; Y-chromosome specific primer (BRY1), and bovine specific satellite sequence primer (SAT1). Results showed that unsexed-sorted sperms tend to have greater fertility rate (58.06%) than those treated with semen sex-sorting kits (Heiferfocus™ with 50.87% and Bullfocus™ with 48.21%). In sex determination, the sex determined by BRY1 in blood DNA samples showed a hundred percent agreement with the animals' anatomical sex. On the other hand, bovine autosomal sequences were amplified in all embryo samples using SAT1. The findings revealed that Heiferfocus™ has female sex ratio of 86.20% while Bullfocus™ has male sex ratio of 33.33%. The present results suggest that treatment of semen with Heiferfocus™, but not with Bullfocus™, numerically increases the desired sex ratio at the rates reported by the manufacturer (20-25%).

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