Abstract

Reproductive management in horse breeding increasingly relies on *in vitro* fertilization (IVF) techniques. This technology entails a complex process, including the acquisition of immature oocytes, their *in vitro* maturation, fertilization with sperm, and subsequent cultivation of the early embryo before transfer into a synchronized recipient. However, the success of equine IVF is influenced by various factors such as oocyte quality, sperm capacitation, and technical issues unique to this process, compared to other mammalian models. This bachelor's thesis aims to summarize and evaluate current knowledge on IVF of horse eggs, identify key factors influencing success, and describe current procedures for gamete preparation. By incorporating the latest IVF approaches and optimizing them, a higher success rate can be achieved. Key aspects for improving equine IVF include gamete collection and handling, *in vitro* oocyte maturation, sperm capacitation, and subsequent embryonic development.