An alternative approach for anestrus management in bovines under field condition

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A study was conducted on 156 anoestrus bovines (102 buffaloes and 54 cows) irrespective of their age and stage of lactation. The cases were randomly divided into two equal groups of 78 animals, each comprising of 51 buffaloes and 27 cows. In group I, the animals were administered with estrus inducer and mineral mixture as part of treatment protocol and in group II; the animals were administered homeopathic medications. In both the groups the animals were observed for estrus signs and were artificially inseminated. The number of animals exhibiting early signs of estrus was more in group II. The animals in group II showed (62.80%) more pronounced signs of estrus than that in group I (41.02%). The conception rate was more in group II animals (53.06%) than conventional group I (34.37%). Both buffaloes and cows responded well to both the treatment schedules and no noticeable side effects were seen. The alternative approach to conventional anestrus therapy was found to be cost effective as well as result oriented even under field conditions, hence can be adopted as a cheaper and effective option for treatment of infertility problems in bovines.

Green synthesis of silver nanoparticles using Annona muricata leaf extract and evolution of their larvicidal, antimicrobial and anticancer activity

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In the present study, the larvicidal potential of silver nanoparticles (AgNPs) synthesized from Annona muricata plant leaf extract against fourth instar larvae of Anopheles stephensi, Culex quinquefasciatus and Aedes aegypti were determined. Various concentrations of synthesized AgNPs (10, 20, 30, 40 and 50 ppm) and the aqueous leaf extract (100, 200, 300, 400, and 500 ppm) were tested. AgNPs were characterized by UV-Vis spectrum, Fourier transform infrared spectroscopy, Particle size analyser, X-ray diffraction, High Resolution Transmission electron microscopy and energy-dispersive X-ray spectroscopy analysis. Larvae were exposed to different concentrations of aqueous and AgNPs for 24 and 48 hours. The maximum mortality was noticed in AgNPs than aqueous leaf extract of Annona muricata against Anopheles stephensi had LC50 values of 24 hours 37.70, 546.7, and 48 hours 25.47, 458.2 ppm and the LC90 values of 24 hours 73.67, 937.0 and 48 hours 53.18, 852.0 ppm. Culex quinquefasciatus had LC50 values of 24 hours 31.29, 516.2 and 48 hours 21.10, 442.3 ppm and the LC90 values of 24 hours 59.54, 936.6 and 48 hours 44.34, 807.2 ppm. Aedes aegypti had LC50 values of 24 hours 20.65, 618.4 and 48 hours 6.35, 349.1 and the LC90 values of 24 hours 45.58, 703.7 ppm, respectively and the 100% mortality was observed in AgNPs against Aedes aegypti after 24 hours in all the concentrations. The antimicrobial activity of AgNPs was investigated against gram positive and gram negative bacteria and fungi. The antibacterial activity of AgNPs was more effective than commercial antibiotics. This study also focused the potential application of AgNPs to target the free radicals scavenging in vitro. Further, we have explored the cytotoxicity effect against human breast cancer cells. These results revealed that the use of Annona muricata synthesized AgNPs can lead a pathway to develop effective biological applications.

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