

The Use of Cryopreservation for Conservation of Endangered Species and Biodiversity

Pınar İLİ¹, Adile SARI², Fikret SARI³

¹ Department of Medical Services and Techniques, Denizli Vocational School of Health Services, Pamukkale University, Turkey

² Department of Electronic and Automation, Denizli Vocational School of Technical Sciences, Pamukkale University, Turkey

³ Department of Plant and Animal Production, Tavas Vocational School, Pamukkale University, Turkey
pili@pau.edu.tr

Aim of the study: The land, air and seas of our planet are home to living things from the tiniest microorganisms to the largest animals, which make up a rich tapestry. The biological richness may differ depending on the mentioned region, and this richness named biodiversity. Biodiversity is the variety of all living things; the different plants, animals and microorganisms, their genetic information and the ecosystems they form. In last decades, a technique has been started to be used for storage of different biological materials. In this review, it was aimed to assess the use of cryopreservation for conservation of endangered species and biodiversity.

Material and Methods: We searched the literature for studies on cryopreservation of different cells, tissues, and embryos for future use. We reviewed the usage of cryopreservation, and discussed the possibility of the use of cryopreservation for conservation of endangered species and species diversity in light of the results of reviewed articles.

Results: Cryopreservation is the slow freezing of cells or tissue to preserve their current state for future use. In freezing protocols, various cryoprotectants with different doses are used in order to keep their vitality and to preserve frozen materials after the freeze-thawing process as if they were fresh. The cryopreservation of sperm has been utilized for years; the first recorded human birth from cryopreserved sperm was in the 1950s. The process has recently begun being used for egg freezing, making way for the more effective technique of vitrification. In addition, cryopreservation of plant cells (or meristems and organs) and embryos has been considered as an important tool for the long-term preservation of species without genetic alteration. As a result, cryopreservation technique may be considered as an effective tool for the conservation and persistence of endangered species to be able to sustain the biodiversity in any region.

Keywords: biodiversity, conservation, species, cryopreservation