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Environmental/biological specimen banking in Iran as a developing country

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Developing countries constitute most of the planet area and population. Most of these countries are situated in warmer areas of the planet and so with more diverse plants and animals. These countries are also more exposed to different types of pollution including toxic pollution as compared to developed world. Considering these facts, establishment of biological and environmental specimen banking are of most necessity in developing countries. Some global threats like climate change, pollution, already extinct plant and animal species, widespread ever increasing use of GMOs etc. makes the establishment of more biobanks a worldwide necessity. Iran as a very diverse country for every aspect of diversity is an important country to have environmental and biological biobanking system. This can help the whole Middle Eastern region to preserve both environmental and biological samples for future studies. Iran and its neighboring countries in West Asia constitute an important study region to help the World for these types of studies. To do this accomplished Iran surely need help from developed and developing countries that already have an established biobanking system. Posibility of specimen banking for marine life of the Persian Gulf (marine mammals) and my experience about the Caspian Sea (different fish species and crustaceans) as a source for monitoring and research, bioaccumulation, biomagnifications trends, temporal trends of organochlorine will be discussed. The importance of biobanking Iranian diverse flora as a source for medicins and pesticidal plants will be discussed.

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Cellular Proliferation and Sustained Drug Delivery on 3Dimentional Collagen Scaffolds for Corneal Regenerationpaper Coverage of Biobanks: Reporting Trends on Benefits, Risks and Legal and Regulatory Issues

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Bandage lenses are used for therapeutic applications on injured or diseased cornea to protect from constant rubbing of blinking eyelids and enhance healing. They are also used in the treatment of various corneal conditions or anterior eye diseases as drug delivery device for eye protection before and after surgery. Collagen was chemically modified by Succinylation to get clear solution at physiological pH (7.4). The thermodynamic behavior was analyzed by Differential Scanning Calorimetric (DSC) and Thermogravimetric analysis (TGA). Fourier Transform Infrared Spectroscopy (FTIR) and Nuclear Magnetic Resonance Spectroscopy (NMR) revealed the functional groups. The physicochemical and mechanical analysis of Succinylated Collagen reflects the retention of the nativity and purity to a greater extent to unmodified collagen. The biocompatibility of Succinylated Collagen was evaluated by invitro methods. Cellular proliferation studies were carried out on control (Polysterene), Collagen Substratum (CS), Succinylated Collagen Substratum (SCS), invitro release of drug in phosphate buffered saline (PBS) and zone of inhibition by agar diffusion studies. In our study of cellular proliferation of fibroblasts, there was enhanced growth of fibroblasts on SCS compared to CS. SCS did not show any abnormalities in cell morphologies and cells were viable compared to CS and control thus confirming the superiority of SCS as a better biomaterial for ophthalmic applications. SCBL loaded with antibiotic (type II) and SCBL encapsulated with polymer type (III) showed an initial burst release of the drug on the first day and continued upto 5 days. SCBL type III showed controlled release as the drug was trapped in the polymer. The zone of inhibition by the agar diffusion study compared favorably with the release of the drug for 5 days showing SCBL type (II and III) can be effectively used as drug delivery device. The ability for better cellular proliferation and as a vehicle for drug delivery makes SCS an ideal biomaterial in the reepithelialization of the cornea and can be effectively used as bandage lenses in various corneal conditions.

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