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ABSTRACTS OF VOLUME 1, ISSUE 4, JULY 2015 OF GCC JOURNAL OF SCIENCE AND TECHNOLOGY

1. Stem cells: An emerging and regenerative future in Dentistry.

Abstract: In recent years, the field of dentistry has embossed its presence by taking major leaps in research and further bringing it into practice. The most valuable ongoing research in regenerative dentistry is the study on stem cells. It was instituted that stem cells grow rapidly and have the potential to form specialized dentin, bone, and neuronal cells. In medicine stem cell-based treatments are being used in conditions like Parkinson's disease, neural degeneration following brain injury, cardiovascular diseases, diabetes, and autoimmune diseases. In dentistry, recent exciting discoveries have isolated dental stem cells from the pulp of the deciduous and permanent teeth, from the periodontal ligament, and an associated healthy tooth structure, to cure a number of diseases. The aim of the study was to review the applications of stem cells in various fields of dentistry, with emphasis on its banking, and to understand how dental stem cells can be used for regeneration of oral and non-oral tissues conversely.

[[REVIEW ARTICLE](#)] [[PDF0012](#)] [[ABSTRACT](#)] [[HTML](#)]

2. Extrusion – Spheronisation: an overview. .

Abstract: Extrusion - Spheronisation process is the most employed technique. Extrusion Spheronisation is one of them and utilized in formulation of beads and pellets. Extrusion spheronisation is widely applied method for the production of multiparticulates, like pellets and beads, for the oral controlled drug delivery system. There is different pelletization and granulation techniques available to prepare drug loaded spherical particles or granules. Extrusion Spheronization is one of them and utilized in formulation of beads and pellets. Limitations related to bioavailability and site specific drug delivery can be overcome by this technique. Today this technology has gained attention because of its simple and fast processing. Extrusion Spheronization is widely utilized in formulation of sustained release, controlled release delivery system. This review article reveals about the extrusion spheronisation process and its application in pharmaceutical industry.

[[REVIEW ARTICLE](#)] [[PDF0013](#)] [[ABSTRACT](#)] [[HTML](#)]

3. Dental hard tissues: iatrogenic ordeal

Abstract: Traumatic injuries in children and adolescents are a common problem, and the prevalence of such injuries has increased over the last 10-20 years. Adverse or physical condition induced in patient

through any treatment procedures by a clinician is known as iatrogenesis. In the field of dentistry, dentist needs to deal in a small area with lot of obstructions around the structure. So, iatrogenic damage to the oral and paraoral tissue is likely to occur in every aspect of dentistry.

[**REVIEW ARTICLE**] [[PDF0014](#)] [[ABSTRACT](#)] [[HTML](#)]

4. A Review on sustained release drug delivery system

Abstract: The term sustained release is known to have existed in the medical and pharmaceutical literature for many decades. It has been constantly used to describe a pharmaceutical dosage form formulated to retard the release of therapeutic agent such that its appearance in the systemic circulation is delayed and/or prolonged and its plasma profile is sustained in duration. Presently pharmaceutical industries are focusing on development of sustained release formulations due to its inherent boons. Sustained release dosage forms are designed to release a drug at a predetermined rate by maintaining a constant drug level for a specific period of time with minimum side effects. The basic rationale of sustained release drug delivery system optimizes the biopharmaceutical, pharmacokinetic and pharmacodynamics properties of a drug in such a way that its utility is maximized, side-effects are reduced and cure of the disease is achieved. There are several advantages of sustained release (matrix) drug delivery over conventional dosage forms like improved patient compliance due to less frequent drug administration, reduction of fluctuation in steady-state drug levels, maximum utilisation of the drug, increased safety margin of potent drug, reduction in healthcare costs through improved therapy and shorter treatment period. The principal goal of sustained release forms is the improvement of drug therapy assessed by the relationship between advantages and disadvantages of the use of sustained release system.

[**REVIEW ARTICLE**] [[PDF0015](#)] [[ABSTRACT](#)] [[HTML](#)]

5. Residual ridge resorption: a review.

Abstract: Residual Ridge Resorption (RRR) is a term that is used to describe the changes which affect the alveolar ridge following tooth extractions, and which continue even after healing of the extraction socket. The most significant feature of this healing process is that the residual bony architecture of the maxilla and mandible undergoes a life-long catabolic remodelling. However, bone resorption activity continues throughout life at a slower rate, resulting in loss of varying amount of jaw structure, ultimately leaving the patient a 'dental cripple'. Rehabilitation of a totally edentulous patient using a conventional complete removable denture is a routine clinical procedure, yet at times it can be a difficult and challenging process. All these patients have been through a period of edentulousness that varies from weeks to months or even years and the promise of having 'teeth' again often makes their expectations unrealistically high. The challenges facing the clinician are therefore manifold and this is the reason why there remains a wide variation in the predictability of clinical success.

[**MINI REVIEW**] [[PDF0016](#)] [[ABSTRACT](#)] [[HTML](#)]

6. A unique case report of bilateral microdonts.

Abstract: As the word developmental defect itself suggests the story. Lots of classifications are published on developmental defects. Microdontia is one of them. It a rare identity itself and if it is bilateral then it is more rare.

[**CASE REPORT**] [[PDF0017](#)] [[ABSTRACT](#)] [[HTML](#)]

7. Isolation and genetic variation in antibiotic producing microorganisms.

Abstract: Antibiotics are chemical substances secreted by some microorganism which inhibit growth and development of other microbes. Bacillus is gram positive endospore forming bacteria which are

placed in the order Bacillales. Many members of the genus Bacillus are capable of antibiotic production. The most antibiotics are released during sporulation, when the culture enters the stationary and after it is committed to sporulation. Mainly five Bacillus species capable of producing antibiotics are selected for the present study. The genomic DNA of five Bacillus species is isolated by phenol chloroform method and the purity of the DNA samples is tested by using Nanodrop 1000 UV Vis spectrophotometer. Visualization of DNA bands was done using agarose gel electrophoresis and Gel documentation was done using an Alpha Imager. Genetic variation in Bacillus species is studied using RAPD-PCR..Random Amplified Polymorphic DNA(RAPD),Arbitrary Primer PCR(AP-PCR) and DNA Amplification Fingerprinting(DAF) are PCR procedures that differ in the length of primers used, the amplification conditions and the resolution and the visualization of the products. Usually only one arbitrary sequence primer per reaction is used for the generation of DNA fingerprints. The primers used in this study were OPA4,OPA5 AND OPA6.Of the three primers used OPA5 and OPA6 bind with the DNA sequence of the organism and form bands. The bands thus formed can be identified using agarose gel electrophoresis.

[**RESEARCH ARTICLE**] [[PDF0018](#)] [[ABSTRACT](#)] [[HTML](#)]

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