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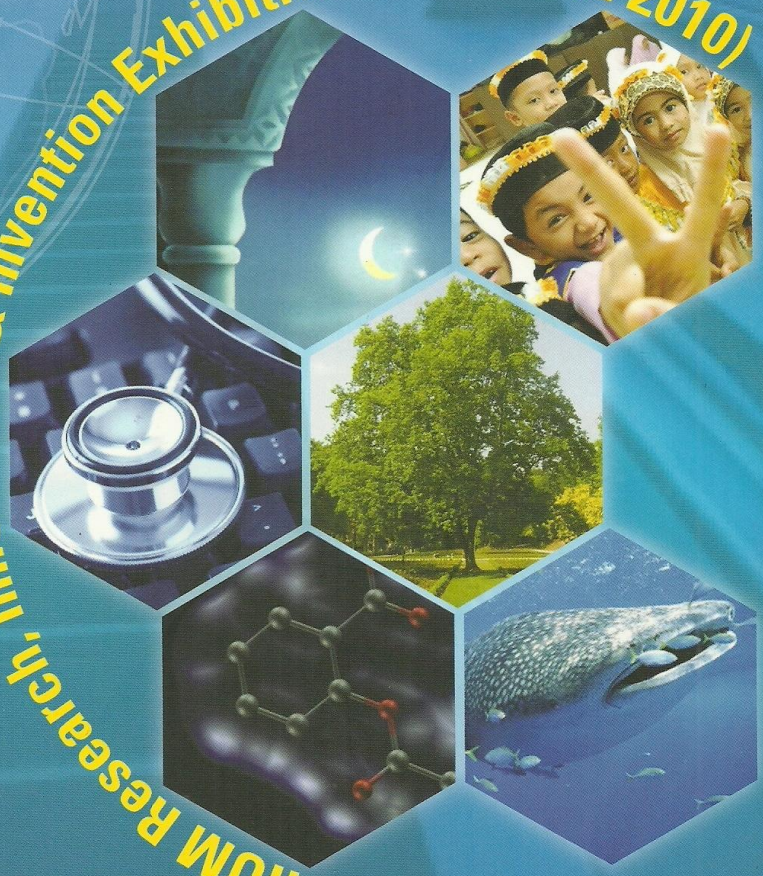

ENHANCING QUALITY RESEARCH & INNOVATION for SOCIETAL DEVELOPMENT

PP-88 Adaptive Speech Synthesis Module With Emotional Expression

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Computer generated speech replaces the conventional text based interaction methods. Initially, speech synthesis generated human voice that lacked emotional expression. This kind of speech does not encourage users to interact with computers. Emotional speech synthesis is one of the challenges of speech synthesize research. The quality of emotional speech synthesis is judged by its intelligibility and similarity to natural speech.

High quality speech is achievable using the high computational cost unit selection technology. This technology relays on huge sets of recorded speech segments to achieve optimum quality. On the other hand, diphone synthesis technology utilizes computational resources and storage spaces. Its quality is less than unit selection, however, due to the introduction of many digital signal processing algorithms such as the PSOLA algorithm, more natural results was achievable.

Emotional speech synthesis research has two significant trends. The first is unit selection based synthesis that aims to fulfill market needs regardless of resource utilization, and the second is diphone based synthesis that is often non-commercial, and oriented to develop intelligent algorithms that utilizes minimum resources to achieve natural output.

In this work, the possibilities of achieving high quality speech using low computational cost systems are investigated. The diphone synthesis is chosen as the speech synthesis technology. The existing approaches to emotional emulation are analyzed to determine aspects that could be further enhanced. Two aspects are highlighted: formant relation to emotions and the deterministic nature of pitch pattern relation to emotion.

These algorithms do not receive much attention from the existing approaches. Two algorithms are proposed to address these two aspects: formant manipulation, and deterministic pitch pattern generation algorithm. These algorithms are incorporated into one TTS system.

The quality of speech synthesis of the proposed system is evaluated using the recently developed objective evaluation methods. The results show significantly small values of simulation error, the mean square error values for happy, sad, fear and anger emotions respectively are: 0.03225, 0.12928, 0.02513 and 0.02429. This margin of error value provides an evidence of the accuracy of the proposed system.

PP-105 Newcastle disease vaccines; improvement of virus purification by using high speed centrifugation

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Newcastle disease is one of the main diseases in the poultry industry. The disease has caused severe losses to farmers and governments worldwide. The causative agent for the disease is the Newcastle disease virus (NDV) which is a member of the Paramyxoviridae family. It is one of several serotypes of avian paramyxovirus and is a pathogen of chickens and other animals. NDV are classified into three major pathotypes, depending on the severity of disease produced in chickens. Lentogenic strains do not usually cause disease in adult chickens and are widely used as live vaccines in poultries. Viruses of intermediate virulence that cause respiratory disease are termed mesogenic, while virulent viruses that cause high mortality are termed velogenic. Until now, there is no treatment for the disease. Prevention is to import birds from disease free flocks only or through vaccination that must continue throughout the life of the bird. Most live ND vaccines in field use today are based on lentogenic strains. Vaccines of mesogenic type are still permitted in a few areas. ND vaccines are produced by pure and high quality antigens. There are several methods available to achieve that; sucrose gradient electrophoresis, high speed centrifugation and recently crossflow filtration. In this study, we have optimized the purification of ND virus using high speed centrifugation method. ND virus produced by fermentation in two liter stirred tank bioreactor were purified using high speed centrifugation. The purification experiments were done

according to 3**(3-1) Fractional Factorial Design. Statistical analysis showed that the maximum virus titer can be achieved at virus sample concentration level of about 58.45% (v/v), centrifugation speed of 13729.03 rpm and centrifugation time of 4 hours.

PP-106 Sorbiochin – Adsorbent for Precious Metals

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Platinum, gold and palladium are precious metals which are widely used in industries for catalysts preparation, electronic components, electroplating, etc. Recovery of these trace metals in low concentration from solutions, plating bath, industrial effluents, etc. are essential for economic reasons and pollution prevention. One option is to use a separation technology based on solid phase extraction (SPE) for the recovery of low concentration of the precious metals. Sorbiochin, a melamine–chitosan–formaldehyde resin has been synthesize from biopolymer and was found suitable for preconcentration of trace amounts of. gold, platinum and palladium. The Sorbiochin is made into powders or discs and can be used to preconcentrate the precious metals from aqueous solutions. Sorbiochin adsorption of the precious metals is optimum at pH 1. The tendency of Sorbiochin to adsorb the precious metals is in the sequence of Pd(II) > Au(III)> Pt(II), and more than 5 - 50 mg of the metal ions can be adsorbed per gram of the resin. The precious metals can be desorbed almost completely from the resin by eluting with a common chelating agent.

PP-109 Starrageen Softgel

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The instability of gelatin based capsule when filled with certain liquid pharmaceutical formulations has drawn a great concern among scientists. Moreover, the costly expense to obtain gelatin from its sources and its limited availability are also the major disadvantages of using gelatin in industrial scale. The source of gelatin can be a problem for potential areas of use or for particular consumers, especially in obtaining the hallal gelatin. An alternative composition from a mixture of carrageenan and a number of starches to replace gelatin in the production of soft gel capsules for packaging of liquid drugs has been discovered. This gelatin replacer has the properties equivalent to those of the gelatin in forming soft gel capsules.

PP-110 Characterization of Experimental Polypropylene Ternary Nanocomposites Produced under Different Process Conditions

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Polymer ternary nanocomposites are credited with better mechanical properties relative to their binary precursor apparently due to the additional strength of the second reinforcing element. They represent emerging paradigms in composite development and application. However research in these emerging composites is limited and evolving. The present paper reports on the characterization of experimental polypropylene ternary nanocomposites produced in the laboratory under different process conditions using multiwall carbon nanotube as secondary filler element. Full factorial experimental design was explored to study the effect of temperature, mixing speed and CNT loading on the morphological and mechanical features of the ternary nanocomposites. . Yield strength, tensile strength at fracture and morphological characterization were studied using UTS and SEM machines respectively. The results revealed that process temperature and CNT loading influences the morphological and mechanical properties of polypropylene ternary nanocomposites, whereas, the mixing speed has little effect on these