Journal of Scientific & Industrial Research

VOLUME 75 NUMBER 5 MAY 2016

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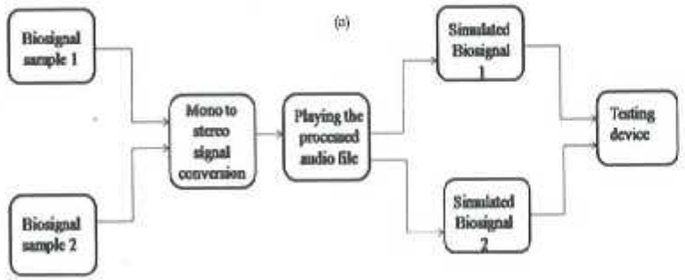
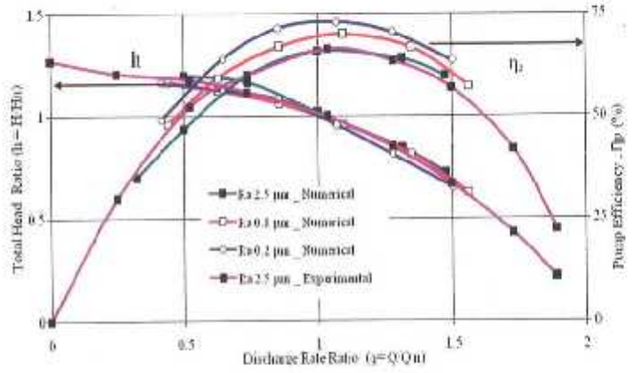
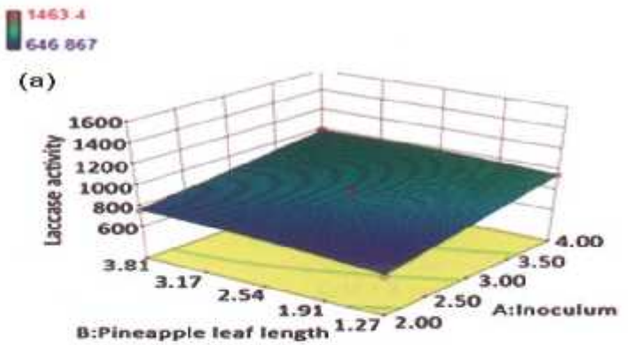
To subside the risk factors as well as the requirements for various age groups of human beings, bio-signal simulators are developed since they exactly mimic the real biological signals. While existing simulators are generating only one bio-signal, this work demonstrates the dual channel simulator capable of producing two bio-signals simultaneously. This task specializes with the simulation of Electrocardiogram (ECG) and Arterial Blood Pressure (ABP) signals from Physionet, the standard database used to generate signals. The sampling frequency for the ECG and ABP signals are 100Hz and 125Hz respectively. These signals are processed and transmitted through the sound card audio output port of the personal computer and can be used for testing and calibrating the medical instruments, research and development and experimental activities in educational institutions.



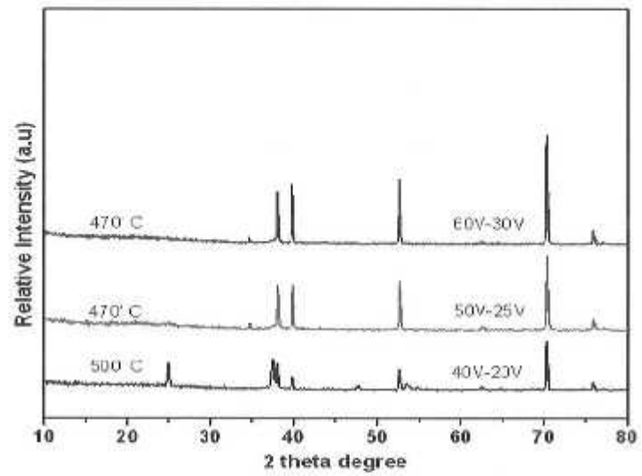
This study focuses on the effect of surface coating on the impellers and diffusers in improving the efficiency of mixed flow submersible borewell pumps. It consists of two parts. In the first part, a 3 stage pump was constructed with uncoated bronze impellers and cast iron diffusers having a surface roughness value of 2.5µm Ra and tested for pump performance. Then the same 3 stage pump was tested with impellers, diffusers coated with a polymeric coating having a surface roughness of 0.2µm Ra and ceramic enamel having a surface roughness of 0.8µm Ra. Experimental results showed considerable improvement, upto 4.5% in pump efficiency.



Laccases are glycosylated polyphenol oxidases belonging to a group of enzymes called blue copper oxidases. In the present study laccase was produced by solid state fermentation of pineapple leaves by Pleurotus ostreatus NCIM1200. For optimization of laccase production the effect of various nutritional and physical parameters on production was initially examined using 'one-factor-at-a-time' method. Variables with statistically significant effects on enzyme production were identified by the Plackett-Burman experimental design.



This work investigated the effects of parameters of the anodization process on the geometrical features of the Titanium nanotubes anode. The topography of Titanium nanotube diameter and length had been affected without usage of magnetic stirrer by applying at three different DC voltage. In this study, we had synthesized Titanium nanotube arrays by electrochemical anodization of Ti foil by direct current (D.C.). Ethylene glycol and ammonium fluoride electrolyte was used to study the development of nanotubes above atmospheric temperature with varying D.C voltages.



Energy and Environment

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