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ENHANCING QUALITY RESEARCH & INNOVATION for SOCIETAL DEVELOPMENT

P-58 Non-visual Confined Space Inspection Probe

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Inspection of confined space is generally made using boroscope in the engineering field or also called endoscope in the medical area. Both devices are based on visual inspection and hence require the use of lighting. The current inspection probe inspects the internals of confined space using distance measurements given by sensors mounted on the peripheral of the probe. The readings are recorded in an on-board memory throughout the inspection. The memory content is subsequently dumped to a computer upon which the internal structure of the confined space is reconstructed.

P-59 Gas Chromatography-Mass Spectrometry (GC-MS) Based Metabolic Fingerprinting of three Malaysian Ginger (Zingiber officinale Rosc.) Cultivars

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A comprehensive metabolic fingerprinting of three micro propagated ginger explants, Bukit Tinggi, Tanjung Sepat and Sabah cultivars, was carried out using Gas chromatography coupled with mass spectrometry (GC-MS). The ginger leave tissues were fractionated in a polar (MeOH) and non polar (CHCl3) solvents, subsequently methoximated and silylated prior to GC-MS analysis. By applying this technique, over 300 metabolites (polar and non-polar) in total were detected in each ginger cultivar. However, only about 25% of these compounds can be definitely characterised by using the Wiley7n.1 and the NIST Mass spectra libraries for the best hit of the molecular ion peaks and the fragmentation patterns. Fatty acids and sugars (mono– and disaccharides) as the main constituents of the ginger leaf tissues besides a small amount of essential amino acids as well as some organic acids. In addition, a distinct GC-MS metabolic fingerprinting in each of the ginger cultivar can be used as "unequivocal pattern recognition" among the ginger phenotype derived from Bukit Tinggi, Tanjung Sepat and Sabah.

P-61 Quantum Markov Chains on a Caylay Tree

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Markov fields play an important role in classical probability, in physics, in biological and neurological models and in an increasing number of technological problems such as image recognition. It is quite natural to forecast that the quantum analogue of these models will also play a relevant role. In this quantum setting there is a problem: the extension to fields of the notion of generalized Markov chains. . In this work we introduce generalized quantum Markov states and chains which extend the notion quantum. Markov chains on spin systems to that on C^*-algebras defined by general graphs. A construction of a generalized d-Markov chains on Cayley trees is given. Certain ergodic properties of concrete examples of quantum Markov chains are studied.