Journal of
Analytical & Bioanalytical Techniques

Hu et al., J Anal Bioanal Tech 2017, 8:1
DOI: 10.4172/2155-9872.1000e128

Editor note OMICS International

Journal of Analytical & Bioanalytical Techniques | Volume 8, Issue 1

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Analysis of experimental data is having the utmost importance in the progress of scientific understanding. Different analytical tools and techniques have made the research work debonair an easy. Scientific findings are dependent on the accurate quantification of drugs, chemicals, and endogenous compounds in biological samples for the purpose of conducting toxicokinetic, pharmacokinetic, bioequivalence, and forensic studies. This issue presents the following findings: Jansen et al. [1], compared and evaluated two commercial assays for estimating the redox status, one based on estimation of the total thiol levels (TTL) and another based on estimation of SH groups in proteins (SHp). It was observed that the SHp assay was better at estimation of redox status in highly lipemic samples, but in all other assays TTL and SHp were comparable. Attarde et al. [2], attempted standardization of *P. integrifolia*, a component of 'Dashmula' based on Apigenin and Luteolin levels which act as internal biological standards for quantification and fingerprinting of the formulation. Wang et al. [3], found that a positive correlation exists between breath acetone levels and blood BHB therefore, it is feasible to ascertain BHB levels based on breath acetone values. Dias et al. [4], developed a sensitive yet robust method for estimation of Epinephrine in CSF using a screen-printed electrode composed of graphite-polyurethane composite, Identified DNA fragments with the least protein binding property and used them as a threshold for scoring DNA-protein interactions in Biacore assay. Yaseen et al. [5], synthesized and characterized Titania-Silica (TiO_2-SiO_2) nanocomposite xerogels which exhibited better photocatalytic activity than TiO_2 or SiO_2 alone. For the purpose of standardizing Cannabis formulations, Jin et al. [6], classified 32 Cannabis samples from Canada into four clusters based on the analysis of 10 cannabinoids and 14 terpenes.

The redox status is a reflection of the physiological state of the body. Quantification of free thiol groups in the plasma is an estimate of the redox status of the animal. Several assays have been developed for the evaluation of the redox status. In this issue, Jansen et al. [1], compared and evaluated two commercial assays for estimating the redox status. While one assay was based on estimation of the total thiol levels (TTL), the other was based on estimation of SH groups in proteins (SHp). The authors observed comparable results in both assays, a decent coefficient of correlation (R^2=0.889) was present between both. But, when plasma samples having a high lipemic index were omitted from the calculation, the coefficient of correlation further improved to R^2 of 0.942. This was due to the fact that as compared to the TTL assay, the SHp assay was better at estimation of redox status in highly lipemic samples.

Dashmula is an ayurvedic concoction of ten roots used for treating various disorders of the kidney, liver, and uterus. It contains two sets of panchmul each comprising of five roots: '*Brihat Panchmul*' contains *Aegle marmelos, Gmelia arborea, Oroxylum indicum, Premna integrifolia, and Stereospermum suveolens; 'Laghu panchmul' contains Desmodium gangeticum, Solanum indicum, Solanum xanthocarpum, Tribulus terrestris, and Uraria picta*. As per WHO guidelines, standardization of the formulations of herbals is required. Towards this end, Attarde et al. [2], attempted to standardize one of the 'Dashmula' components, *P. integrifolia*. Different batches of marketed formulation were estimated for Apigenin and Luteolin which act as internal biological standards for quantification and fingerprinting of the formulation. The analysis revealed variance in a batch and manufacturer dependent manner. This methodology was accurate and robust.

Breath acetone has been known to be a biomarker for diabetes. Currently, blood sugar (BG) is employed as the clinical parameter for diagnosing diabetes. The use of breath acetone as a noninvasive alternative for diagnosis of diabetes is still a challenge as a quantitative relationship between the BG concentration and breath acetone is yet to be established. In this issue, Wang et al. [3], have investigated the correlation between breath acetone, BG and blood beta-hydroxybutyrate (BHB) in a rat model of Type 1 diabetes (T1D). The authors subjected the T1D rats to breath acetone analysis in fasting and insulin-treated conditions. Breath acetone levels were estimated using LaserBreath-001. The results revealed that a positive correlation exists between breath acetone levels and blood BHB in both T1D and healthy groups, but a moderately negative correlation exists between breath acetone and BG.

Epinephrine is a neurotransmitter that is produced by both the adrenal glands and the neurons. It plays a key role in the fight or flight response by reducing the blood flow in peripheral system. Because of its key role in regulating the body's responses, 'too-much' or 'too little' of this hormone cum neurotransmitter can cause complications. High concentrations can lead to diabetes and arterial hypertension, low concentrations can lead to cognitive and memory disorders. Several analytical techniques have been developed for estimation of Epinephrine, but all of these have poor efficiencies and are cumbersome. In this issue, Dias et al. [4], used a screen-printed electrode composed of graphite-polyurethane composite for the estimation of Epinephrine in cerebrospinal fluid. This method proved to be sensitive yet robust.

The Biacore system is extensively used for analysing biochemical interactions in real-time without resorting to the use of labelled molecules. This technique can identify the strength of molecular interactions in terms of their binding affinity, specificity, and kinetics. Although Biacore has been used extensively for studying intermolecular interactions, only a handful of studies have been conducted on DNA-protein interactions in the crude nuclear extract. There are a few practical issues with respect to quantitation of DNA–

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Received February 15, 2017; **Accepted** February 17, 2017; **Published** February 22, 2017

Citation: Hu Q (2017) Journal of Analytical & Bioanalytical Techniques | Volume 8, Issue 1. J Anal Bioanal Tech 8: e128. doi: 10.4172/2155-9872.1000e128

protein interaction in crude nuclear extract, such as the highly dynamic reaction kinetics and preponderance of non-specific DNA-protein interactions. Developed a method for identifying non-specific DNA-protein interactions, towards this end the authors identified DNA fragments with the least protein binding property and used them as an internal control. Together, the study enhances the reproducibility of the Biacore assay.

Titania-silica nanocomposite materials have been proposed as an alternative to the conventional TiO_2 (Titania) catalysts in photocatalytic reactions. In this issue, Yaseen et al. [5], synthesized and characterized Titania-Silica (TiO_2-SiO_2) nanocomposite xerogels. XRD results revealed that the TiO_2-SiO_2 xerogel is non-crystalline and has an amorphous nature. The authors suggested that the Ti-O-Si bonds may be responsible for enhanced surface properties, and enhanced catalytic and photoactivities. It was also observed that the TiO_2-SiO_2 nanocomposite exhibited better photocatalytic activity as compared to TiO_2 and SiO_2 alone.

For over a century, cannabis research has been hampered by its status as a narcotic. Legalization of cannabis for medicinal use in North America requires standardization of its phytochemical composition. This requires classification of hundreds of cultivars in terms of the whole spectrum of cannabinoids and terpenes. The existing approaches for classification of cannabis are inadequate as they are solely based on the estimation of the primary cannabinoids-cannabidiol (CBD) and tetrahydrocannabinol (THC). Jin et al. [6], developed and validated analytical methods for quantification of cannabinoids and terpenes in cannabis raw material. The authors classified 32 cannabis samples into four clusters based on the analysis of 10 cannabinoids and 14 terpenes.

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