genotoxicity, endocrine disruption and immunotoxicity. The effect of various parameters involved in or relevant for sample preparation of paper and cardboard FCMs is presented and evaluated. These include the type of paper and cardboard FCMs, incubation temperature, migration setup, direct and indirect contact of paper and cardboard FCM with the food simulant and the type of food simulant. The challenges of chemical analysis of paper and cardboard FCM extracts through gas and liquid chromatography coupled to mass spectrometry are reported and discussed. The effect of solvent type on the solubility of extracts and the responses by the selected in vitro bioassays is discussed. The results of this study aim to contribute to the enhancement of the reliability and efficiency of sample preparation procedures, which in turn augments the overall efficiency and outcome of the safety assessment of those FCMs.

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P22-09
Dissolution kinetics of three different nanoparticles using the continuous flow-through system

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Nanomaterials possess unique physico-chemical properties that distinguish them from their bulk counterparts. However, these unique properties also give rise to concerns about the safety of these nanomaterials. Therefore, investigating the biodurability and persistence of nanoparticles is of paramount importance because these parameters influence their impact on human health and the environment. Although there has been extensive research on the dissolution of nanoparticles in simulated media, most studies ignored the importance of investigating and determining their dissolution rates, dissolution rate constants, determining their half-times or elucidating the order of the reaction. Knowledge of these parameters will assist in assessing their biodurability in different biological and environmental media which in turn will contribute to their biopersistence in these media. Using the continuous flow-through system, dissolution studies were conducted to assess the biodurability and persistence of gold nanoparticles (AuNPs), silver nanoparticles (AgNPs), and titanium dioxide nanoparticles (TiO_2 NPs) in five different simulated biological fluids and two synthetic environmental media to predict their behaviour in real-life situations. The former simulated fluids have included the Gamble's fluid & phagolysosomal fluid representative of fluids found deep within the lungs and in lysosomes, gastrointestinal fluids represented by gastric fluid and intestinal fluid and lastly blood plasma (BP). Finally simulated environmental fluids that have included Freshwater and Seawater. Of all the simulated biological media tested, acidic media such as phagolysosomal and gastric fluid produced the highest dissolution of all the three nanoparticles compared to alkaline media such as blood plasma, Gamble's fluid, and intestinal fluid. Furthermore, when the particles were exposed to simulated environmental conditions, the dissolution was higher in high ionic strength seawater compared to freshwater for all three particles AgNPs, AuNPs and TiO_2 NPs. The rate and degree of dissolution depended on the surface functionalization, pH, ionic strength of the simulated fluids and particle aggregation. The results obtained via the continuous flow through dissolution experiments indicate that AuNPs and TiO_2 NPs are characterized by low dissolution rates are expected to be (bio)durable in biological fluids and persistent in environmental surroundings thus they might impose long-term effects on humans and the environment. In contrast, AgNPs have high dissolution rates and are not (bio)durable and hence may cause short-term effects. The results suggest a hierarchy of biodurability and persistence of TiO2 NPs > AuNPs > AgNPs.

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P22-10
Prevalence and outcome of Covid-19 in patients with substance abuse disorder presented to tertiary care hospital emergency department

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Background: Currently, there is few studies looking at of the risks and outcomes for COVID-19 infection in individuals with substance abuse disorder (SUD). SUD are believed to be at increased risk of covid infection and at more risk of bad outcome.

Objectives: The aim of this study is to describe the prevalence of covid-19 and outcomes in patients with SUD presented to Sultan Qaboos University Hospital Emergency Department (ED) over 1 year.

Methods: It is a retrospective study that included all patients presented to Sultan Qaboos University Hospital Emergency Department from March 20120 to March 2021 who had drug abuse screening done. Patients were included if they are they are found to be positive for SUD and had a covid-19 swab test as well.

Results: A total of 422 patients were found but only 104 patients met the inclusion criteria 0.99% (103/104) were male and Omani. The age range was 21–62 years old. Covid was positive in 8.6% (9/104). 0.98.5% presented with respiratory symptoms. 15.3% (16/104) had history infective endocarditis and 38.4% (40/104) had psychiatric disease. 57.6% (60/104) are smoker. 67.3 (70/104) were morphine abuser while 25% (26/104) methamphetamine abusers. 72.1% (75/104) were admitted to hospital with 77.8% admission (7/9) in patients with SUD with covid infection. Mortality was 6.7% (7/104) in general, with 33.3% mortality (3/9) in covid positive SUD. 55.6% (5/9) had hepatitis B, C and E compare to 43%(95/104) of covid negative. Further analysis showed, SUD patients with hepatitis B or hepatitis E have 5.5 increased risk of getting infected with covid-19. SUD patients with covid-19 have 11.4 increased risk of death. Drug abusers who are more > = 30 years old have 4.2 increased risk of getting at least 2 complications (acute kidney injury, rhabdomylosis, aspiration pneumonia liver cirrhosis, ect).

Conclusion: The prevalence of covid-19 in patients with substance abuse disorder was slightly high, and patients with hepatitis having 5.5 increased risk of getting infected with covid. Covid infection in SUD patients have high morbidity and mortality. Further studies are required to determine factors that would predict a worse prognosis of covid infection in SUD patients.

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