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A virtual conference on chemistry and its applications (VCCA-2021) was organized online from 9th to 13th August 2021. The theme of the virtual conference was “Chemical Sciences for the New Decade”.

There were 197 presentations for the virtual conference with 400 participants from 53 countries. A secured platform was used for virtual interactions of the participants. After the virtual conference, there was a call for full papers to be considered for publication in the conference proceedings. Manuscripts were received and they were processed and reviewed as per the policy of De Gruyter.

This book, volume 1, is a collection of the thirteen accepted manuscripts within the fields of organic and natural product synthesis.

Apollo and Aoyi carried out anaerobic digestion in a fluidised bed reactor and defined its operation using various kinetic models in order to determine the suitable reactor operating conditions. Oyeyiola and Adeosun evaluated the soil sodicity ameliorative effects of biochar types prepared from poultry manure co-pyrolyzed with or without urea on soil organic carbon and selected soil chemical characteristics of a simulated sodic soil. Maundu et al. determined the effects of alum, soda, and dissolved carbon dioxide on 40–50 year old concrete tanks used in a wastewater treatment plant. Apollo reviewed the sludge production in South Africa municipal wastewater treatment plants and analysed the handling cost and the potential minimization methods. Nnodum and co-workers determined the heavy metal concentrations in the sediment of Okeafa canal, Lagos, Nigeria. They found that the average concentration of each metal appears to be within the permissible level by World Health Organisation. Mensah et al. reported on the simultaneous remediation of polycyclic aromatic hydrocarbon and heavy metals by zerovalent iron titanium oxide. Momeni and co-workers investigated on the antioxidant and antibacterial activities of two xanthones derivatives isolated from the leaves extract of *Anthocleista schweinfurthii* Gilg (Loganiaceae). The research of Chan Sun et al. was focussed to determine the prevalence of Metabolic Syndrome among the employees of a public educational institution in Mauritius. Suhartati et al. carried out cytotoxicity test and antibacterial assay on the compound produced by the isolation and modification of artonin E from *Artocarpus kemando* Miq. Noviany and co-workers studied the antibacterial, antioxidant and cytotoxic activities of the stem bark of *archidendron jiringa* (Jack) I.C. Nielsen. Noviany and co-workers reviewed the studied conducted, including the isolation and screening of biological activity of purified compounds from Fabaceae plant. Nedyalkova et al. developed a questionnaire for carrying out a survey on diabetes mellitus type 2 risk effects and precondition factors

and they also carried out a multivariate statistical data analysis. Garcia Rodriguez et al. synthesized the fusion protein SARS-CoV-2S protein (RBD)-hFc by linking the receptor-binding domain of the SARS-CoV-2 virus and the crystallizable fragment of a human immunoglobulin and characterization was performed using size exclusion liquid chromatography.

I hope that these chapters of this volume 1 will add to literature and they will be useful references for researchers.

To conclude, VCCA-2021 was a successful event and I would like to thank all those who have contributed. I would also like to thank the Organising and International Advisory committee members, the participants and the reviewers.

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