



Implen Journal Club | May Issue

Welcome to our May issue of the #Implen #JournalClub in 2021.



Spyridoula Christopoulou, Sofia Karaiskou and Despina Kalogianni from University of Patras developed a microbead-based method for the detection of hazelnut, peanut and walnut allergens using a suspension of spectrally distinct fluorescent polystyrene microbeads. The method is based on the simultaneous identification of specific DNA sequences after PCR. The NanoPhotometer® was used to measure the isolated genomic DNA prior to a multiplex hybridization assay using Luminex 100IS flow cytometer.

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A new therapeutic approach is needed to prevent chronic inflammation and alleviate insulin resistance. Therefore, Yanjing Li, Shaojingya Gao, Sirong Shi, Dexuan Xiao, Shuanglin Peng, Yang Gao, Ying Zhu and Yunfeng Lin from Sichuan University, Shanghai Advanced Research Institute and Southwest Medical University synthesized a tetrahedral framework nucleic acid (tFNA) nanoparticle that carried resveratrol (RSV) to inhibit tissue inflammation and improve insulin sensitivity in obese mice. The NanoPhotometer® was used for the following:

- 1) The loading efficiency (LE) and entrapment efficiency (EE) of RSV in the tFNAs were examined and calculated as follows:

$$LE = (\text{Total RSV} - \text{Free RSV}) / (\text{Total tFNAs}) \quad EE (\%) = (\text{Total RSV} - \text{Free RSV}) / (\text{Total RSV}) \times 100$$

- 2) Detection of the UV absorbances of RSV, tFNAs, and tFNAs-RSV.
- 3) Measuring the protein concentration of each sample prior to Western Blotting.

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Pseudomonas syringae, a pandemic quarantine plant pest, is causing kiwifruit bacterial canker.

Marta Nunes da Silva, Marta Vasconcelos, M. Gaspar, Giorgio Balestra, Angelo Mazzaglia and Susana Carvalho analyzed the dynamics of Actinidia/Pseudomonas pathosystems, in order to identify and integrate key metabolic or genotypic traits that account for the higher tolerance of some

Actinidia spp. The NanoPhotometer® was used for:

- 1) Total chlorophyll quantification as in Sumanta et al. by recording samples absorbances at 470, 652 and 665 nm
- 2) Soluble lignin quantification adapted from Hatfield et al. at 280 nm followed by a calibration curve measurement
- 3) Malondialdehyde quantification adapted from Li at 532 and 600 nm

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Fullerenes are increasingly investigated for the use in electronics, optics, cosmetology and pharmaceuticals due to their solubility in organic solvents. The work of T. V. Nagorna, O. A. Kyzyma, L. A. Bulavin, D. Chudoba, V. M. Garamus, M. V. Avdeev, and V. L. Aksenov from Joint Institute for Nuclear Research, Taras Shevchenko National University of Kyiv and Helmholtz-Zentrum Geesthacht continues a series of studies investigating the interactions and cluster formation in the C60/toluene/NMP system. The UV/Vis absorption spectra of the C60/toluene solution and the C60/toluene/NMP mixture were recorded in the wavelength range of 200–950 nm using a NanoPhotometer®.

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