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Quantitative Assessment of Total Aerobic Viable Counts in Apitoxin-, Royal-Jelly-, Propolis-, Honey-, and Bee-Pollen-Based Products Through an Automated Growth-Based System

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Bee-derived products such as apitoxin, royal jelly, propolis, bee pollen, and honey are increasingly being used as part of cosmetic products because all of them contain a large number of bioactive compounds with antioxidant, anti-inflammatory, antimicrobial, and regenerative properties, which enable them to be used for therapeutic purposes. The aim of this investigation was to assess the performance of an automated growth-based system in order to make a quantitative examination of the total aerobic viable counts in bee-derived personal care products using NF-TVC vials that contained a nutrient-based medium with dextrose as the carbon source. According to USP general chapter <1223>, pivotal validation criteria such as linearity, equivalence of results, operative range, precision, accuracy, ruggedness, limit of quantification, and limit of detection have demonstrated that the automated system can be used for a reliable total aerobic viable count. Moreover, the actual research demonstrated that polysorbates efficiently block the antimicrobiological potential of bioactive compounds, such as phenols, flavonoids, enzymes, peptides, and fatty acids, which naturally occur in apitoxin, royal jelly, propolis, bee pollen, and honey, allowing for efficient microorganism recovery from the bee-made products tested. Therefore, this AGBS could be applied efficiently within the cosmetic industry to assess the total aerobic viable count in bee-derived products such as capillary treatments, toothpaste, and anti-aging cream, affording several benefits associated with faster product release into the market.

Biography

Harold Alexis Prada-Ramírez is the Innovation and Development Leader at Laboratorio Coaspharma S.A.S., Bogotá, Colombia. His research focuses on pharmaceutical microbiology, antimicrobial resistance, rapid microbiological methods, and pharmaceutical quality control. He has published numerous scientific articles and is recognized for his contributions to microbiological innovation and regulatory science in the pharmaceutical industry.