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An innovative method for the extraction and quantification of curcuminoids from a complex matrix

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In recent years because of the increasing resistance and regulations on the use of antibiotics in animal feed, plant extracts have gained a lot of attention as an effective substitute to antibiotic growth promoters in animal nutrition. Due to the low inclusion levels of essential oils in products, extraction and quantification of the active compounds become a major challenge. The different steps involved in the process can be destructive and affect the properties of natural extracts and it is important to have a precise way to quantify the active compounds. In this study, a quick and easy method was developed to extract curcuminoids (bisdemetoxycurcumin-BDMC, demetoxicurcumin-DMC and curcumin-CUR) from complex matrix, which were quantified by Reverse phase Ultra Performance Liquid Chromatography coupled to Mass Spectrometry. For curcuminoids extraction 20 g of sample with 60 ml of solvent was deposited in Teflon flask, closed and placed in an autoclave for 2 minutes at sterilization temperature and this was kept to cool down and evaporated with nitrogen until 2 ml remain then filtered and analyzed. For the 3 curcuminoids in premix and feed, the extraction recovery for this method ranged from 94.5 to 99.3% with relative standard deviation <5% and the detection limit was achieved at levels of micrograms of curcuminoid per gram of sample. Compared to Soxhlet extraction method, the method developed offers the advantage of short time and reduced amount of organic solvents used. This method could be used to determinate the curcuminoids on complex matrix, which is needed to evaluate the quality and control of the final products.

Biography

Jarintzi Rico has completed her Master's degree from CICATA-IPN-Querétaro. She is working as an instrumental methods Analyst at Euro-Nutec Premix S A de CV, Queretaro Mexico.

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