

Optimization of gas detection method for determination of gases in anaerobic systems using thermal conductivity detector

Rohit Rathi
TERI, India

In an anaerobic system, bacteria generally produce gases like hydrogen, methane and carbon dioxide. These gases have wide application in fuel, petrochemical and energy industries. So the detection and quantification of such gases in order to control manufacturing process and production quality is very important. Conventionally, flame ionization detector (FID) has been primarily used for the detection of such gases. However, when FID is used, only methane gas can be quantified while the other gases cannot be simultaneously analyzed, because FID cannot detect gases which do not contain carbon hydrogen bond. Therefore there is a need for an alternative method for simultaneous analysis of all the gases. In this research, we report a very sensitive, reproducible method for analysis of all the gases using Gas Chromatograph (Agilent 7890A) fitted with a thermal conductivity detector (TCD). Molecular sieve packed stainless steel column (2m x 2mm id NUCON, India) was used, with the following operating conditions: Column temperature 50°C, injector temperature 100°C and detector 150°C. The carrier gas used was argon at a flow rate 6ml/min with nitrogen (3ml/min) as a makeup gas. The detection limit of these gases namely hydrogen, nitrogen, methane and CO₂ was found to be 0.02ml.

Biography

Rohit Rathi has completed his MSc in Microbiology from Pune University in the year 2011. He is a Research Associate Trainee in The Energy and Resources Institute (TERI), New Delhi.

rohit.rathi@teri.res.in

Determination and validation of isolated vitamin E from natural source by high performance liquid chromatography

Rupali P. Dandade
Sharad Pawar College of Pharmacy, India

The present work was aimed to design a quick and simple analytical method suitable for routine analysis of natural vitamin E in wheat germ (*Triticum vulgare*). Vitamin E (Tocopherol) is the most important lipid soluble, naturally occurring antioxidant and is well recognized in human nutrition in nutraceuticals and pharmaceuticals and hence its quality assurance is utmost important. The research work deals with the extraction and isolation of vitamin E obtained from wheat germ using different organic solvents such as ether, hexane and ethanol. Development and validation of Reverse phase high performance liquid chromatography (RP-HPLC) for the estimation of vitamin E in wheat germ. The analytical method was validated as per the USA, FDA guidelines in USP including parameters such as Accuracy, Precision, Specificity, Limit of detection, Limit of quantitation, Linearity and Range, Ruggedness and Robustness. The study revealed that the isolation and determination of Vitamin E in wheat germ (*Triticum vulgare*) by Reverse phase high performance liquid chromatography was very sensitive, quick, precise and suitable for routine determination of Vitamin E (tocopherol) in wheat germ. The proposed RP-HPLC method avoids the wastage of sample due to saponification and thereby can increase the trend of estimation of Vitamin E in nutraceuticals and pharmaceuticals.

Biography

Rupali P. Dandade has completed Bachelor of Pharmacy from Smt. Kishoritai Bhojar College of Pharmacy, Kamptee and currently pursuing Master of Pharmacy from Sharad Pawar college of Pharmacy, Nagpur. She attended three national conferences and workshop on Experimental Design. She is also pursuing certificate course in Pharma Regulatory Affairs from Bioinformatics Institute of India, Noida.

rupalidandade@gmail.com