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Greenhouse gas analysis by GC technique and cost & effectiveness technologies used to reduce carbon dioxide emissions- An overview

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Transportation sources emit different gases that contribute to global warming, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbons (HFCs). CO_2 is by far the most prevalent GHG emitted by transportation sources. Continuously measuring gives insight in the source of the different gases. We custom configured a 450-GC based system for analyzing all three gases in one run in a matrix of atmospheric air containing water vapor, A greenhouse gas calculator tool (Biosolids Emissions Assessment Model, BEAM) was developed for the Canadian Council of Ministers of the Environment to allow municipalities to estimate GHG emissions from biosolids management.

For greenhouse gas emissions, EPA states that the estimation methods prescribed in the federal Mandatory Reporting of Greenhouse Gas1 rule should be used as a primary reference in emissions inventories and permit applications.

We have developed CO_2 reduction effectiveness estimates for five broad categories of vehicles in order to represent the range of products available in the light duty vehicle fleet. These five categories are labeled small car, large car, minivan, small truck and large truck. The technologies are organized by six broad categories: engine technologies, transmission technologies, hybrid technologies, electric vehicles, accessory technologies and other vehicle technologies.

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Gas chromatographic method development for determinination of gabapentin using ethyl chloroformate as derivatizing agent

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A new, simple and sensitive gas chromatographic method for the determination of Gabapentin has been developed. The method is based on the derivatization of Gabapentin with Ethyl chloroformate. GC method development and validations were carried out on SHIMADZU model 2014, coupled with FID. Rtx-5 capillary column (cross bond of 5% diphenyl and 95% dimethyl polysiloxane) with dimension of 30m × 0.25mm was used for analyte elution.

The injection port and detector temperature were set to 150˚C and 250˚C respectively. 2 µL sample was manually injected in to the injector space. Column temperature was adjusted to 60^0C for 2 min. Temperature was gradually increased to 85^0C at the rate of 2^0 C min^{-1} and was maintained for 5 min. Carrier gas (Nitrogen) pressure was 85 Kpa. The limit of detection (LOD) and limit of quantification (LOQ) of this method was found to be 0.87 mcg and 2.76 mcg respectively. The method was found to be linear in the concentration range of 10-35 mcg/ml. The recovery value of this method was found to be 101.3%.

Biography

P. Mahitha is a student of JSS College of Pharmacy, JSS University, Mysore. She has completed her B. Pharm from Global College of Pharmacy, Moinabad, Ranga Reddy (Dist), A.P. Presently she is pursuing M. Pharm Degree in the branch of Pharmaceutical analysis. Her current area of research is on analytical method development of novel drugs using GC.

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