# A BAYESIAN APPROACH TO IDENTIFY DIFFERENTIALLY EXPRESSED GENES

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- *ABSTRACT: DNA arrays technology has become an important tool for genomic research due its capacity of measuring simultaneously the expression levels of a great number of genes or fragments of genes in different situations. An objective in gene expression data analysis is identifying genes with significant difference between the expression levels in a treatment experimental condition in relation to expression levels in a control experimental condition. We propose a Bayesian approach in order to identify differentially expressed genes based on posterior probability of difference that is calculated using the Bayes factor. The proposed approach is compared to t-test by using artificial data sets and a real data set. Results from simulation show a better performance of the proposed approach in identification of difference of means and/or variance for small samples size, usual in gene expression data analysis. The application to a real data set shows a complementarity among the methods in identification of differentially expressed genes.*

- *KEYWORDS: Gene expression; Bayesian approach; posterior probability; Bayes factor.*

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