

Title: Review of acidity constants of compounds of pharmacological interest.

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The knowledge of the acidity constant for substances with acid-base properties is of main importance in many fields. In fact, the behaviour of compounds in their neutral form is often different from the ionic form. Therefore, the value of the acidity constant of compounds can be decisive for their use in certain applications or processes. The determination of this parameter is of interest in the pharmaceutical industry, since many potential drugs are weak acids or bases, and important physicochemical properties such as bioavailability, solubility or hydrophobicity are conditioned by the degree of dissociation

Acidity constants can be determined through many different methods. Among them, potentiometry, spectrophotometry and capillary electrophoresis are the most used. Each methodology implies different experimental conditions, so often literature sources or databases report different pK_a values for a same compound.

That is the reason why a search and selection of correctly measured values from all the possible bibliographic sources will be made. Mainly, this search will be focused on non-steroidal anti-inflammatory compounds. From the reviewed pK_a values, the different methods to determine acidity constants will be compared and a discussion of the variability between the results as well as the influence of structure on the pK_a value will be done.

Keywords: Acidity constant, pK_a determination, potentiometry, spectrophotometry, capillary electrophoresis, database.