



Validation of an HPLC Method for the Determination of Dibucaine Encapsulated in Solid Lipid Nanoparticles and Nanostructured Lipid Carriers

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SUMMARY. Dibucaine (DBC), used mainly in topical formulations, is one of the most potent long-acting local anesthetics, but is also one of the more toxic. Recently, solid lipid nanoparticles and nanostructured lipid carriers have been attracting attention as promising drug delivery carriers. This study develops and validates an analytical HPLC method for quantifying the local anesthetic DBC associated to lipidic structures. Average sizes, polydispersion, surface charge and DBC encapsulation efficiency were analyzed. The DBC quantification was performed by using C18-reversed-phase column, a mobile phase with acetonitrile:triethylamine phosphate buffer and UV detection. The results show that the analytical methodology is accurate, reproducible and robust; the method was linear in the concentration range 1.5-30 µg/mL with a high correlation coefficient ($r = 0.999$). The nanoparticles presented mean diameters around 200 nm and high encapsulation efficiency for DBC (over 70% for SLN and NLC samples). This methodology can be useful for quantifying DBC in different nanostructured carriers.

KEY WORDS: Dibucaine, HPLC, Lipid carriers, Method validation.

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