



RESEARCH ARTICLE

UV SPECTROPHOTOMETRIC METHOD DEVELOPMENT FOR THE DETERMINATION OF DESVENLAFAXINE SUCCINATE IN TABLET FORMULATION

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Desvenlafaxine succinate is a synthetic form of the major active metabolite of venlafaxine. The aim of the present study was to develop a simple, accurate, precise and reproducible method for the estimation of desvenlafaxine succinate in tablet dosage form using UV spectrophotometry. Purified water was used as the solvent for desvenlafaxine succinate. The UV spectrum of desvenlafaxine in water showed λ_{\max} at 224 nm and Beer-Lambert law was obeyed in the concentration range of 5-40 $\mu\text{g/ml}$. The result of analysis has been validated statistically. The recovery studies range from $99.78 \pm 1.05\%$, confirmed the accuracy of the proposed methods. The method was found to be precise with % relative standard deviation $\pm(0.244\%)$ for interday precision and for intraday $\pm(0.243\%)$. The proposed method is simple, precise, accurate and rapid for the determination of desvenlafaxine succinate in tablet dosage forms.

Key words: Desvenlafaxine succinate, UV spectrophotometry, Tablet dosage form, Beer-Lambert law.

INTRODUCTION

Desvenlafaxine succinate is an antidepressant of the serotonin-nor epinephrine reuptake inhibitor class. Desvenlafaxine is a synthetic form of the isolated major active metabolite of venlafaxine, and is categorized as a serotonin-nor epinephrine reuptake inhibitor (SNRI). It works by blocking the transporter "reuptake" proteins for key neurotransmitters affecting mood, thereby leaving more active neurotransmitters in the synapse. The neurotransmitters affected are serotonin (5-hydroxytryptamine) and nor epinephrine (noradrenalin). It is approximately 10-fold more potent at inhibiting serotonin uptake than nor epinephrine uptake. When most normal metabolizers take venlafaxine, 70% of the benefit comes from venlafaxine being metabolized into desvenlafaxine, so the effects are very similar. It is being targeted as the major

depressive disorder, vasomotor symptoms associated with menopause, fibromyalgia and diabetic neuropathy. Chemically, it is 4-[2-Dimethylamino)-1-(1-hydroxycyclohexyl) ethyl] phenol succinate hydrate. The literature review revealed that no method is yet reported for the UV spectrophotometric estimation of the desvenlafaxine succinate in tablet dosage forms. The present study describes a simple, rapid, accurate and reproducible method for the estimation of desvenlafaxine succinate in tablet formulations.

MATERIALS AND METHODS

Instrument

Perkin-Elmer UV-Visible spectrophotometer was used for spectral measurements with spectral band width 1 nm, wavelength accuracy 0.5 nm and 1 cm matched quartz cells.