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Analytica-2015: Validated determination of escitalopram by capillary zone electrophoresis in pharmaceutical preparations- Arın Gül Dal - Anadolu University

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Escitalopram is an oral serotonin re-uptake inhibitor. In this study, a simple, fast and sensitive method was developed for the determination of escitalopram by capillary electrophoresis in pharmaceutical preparations. Metoprolol was used as IS. Separation was achieved by a fused silica capillary with 40 cm effective (48.5 cm total, 75 μm i.d.) length. The run buffer was composed of 15 mM phosphate buffer (pH 2.5). The applied potential was 25 kV and the samples were injected at 50 mbar pressure for 10 s. The migration times under these optimum conditions were 6.51±0.07 and 6.73±0.08 minutes for escitalopram and IS, respectively. The method was validated for linearity, precision, accuracy, specificity and sensitivity. The LOQ was calculated as 3.57×10-7 M for escitalopram. The method was successfully applied to tablets, film coated tablets and oral drops of escitalopram.

Escitalopram is a selective serotonin re-uptake inhibitor (SSRI) and the S-enantiomer of racemic citalopram. It is used to restore serotonergic function in the treatment of depression and anxiety. Escitalopram is approximately 150 times more potent than citalopram's R-enantiomer and is responsible for the vast majority of citalopram's clinical activity, with some evidence suggesting that the R-enantiomer of racemic citalopram actively dampens the activity of escitalopram rather than existing simply as an inactive enantiomer. Amongst SSRIs, escitalopram exerts the highest degree of selectivity for the serotonin transporter (SERT) relative to other off-targets which may explain its lower rates of adverse effects as compared to other agents in this class. Escitalopram also differentiates itself from other SSRIs via allosteric action on its target - this may be the mechanism responsible for its observed superior efficacy and faster onset compared to other SSRIs.

Escitalopram has FDA approval typically used as an antidepressant to treat depression associated with mood disorders, although it also may be used in the treatment of body dysmorphic disorder and anxiety, including OCD; Discontinuation from antidepressants, especially abruptly, has been known to cause certain withdrawal symptoms. One possible discontinuation symptom from Escitalopram is a type of spontaneous nerve pulse known as paresthesia or 'electric shock sensations', described by some patients as a feeling of small electric shocks, which may be accompanied by dizziness. These pulses may be short in duration, only milliseconds long, may affect any region of the body, and recur up to several times a minute, throughout all waking hours. They can be increased by physical activity, but are not solely linked to muscular activity. Other discontinuation symptoms include extreme sensitivity to loud sounds and bright lights, chills, hot flushes, cold sweats, reddening of the face, abdominal pain, weight gain and extreme mental fatigue.

Biography

Arın Gül Dal has completed her PhD in 2009 from Anadolu University, Institute of Health Sciences. She is now working at Anadolu University, Faculty of Pharmacy as an Assistant Professor. She has papers on separation methods like capillary electrophoresis and liquid chromatography in international periodicals and meetings.

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