

ASSESSMENT OF THE IDENTITY OF AESCIN AND L-ARGININE SUBSTANCES BY THE THIN-LAYER CHROMATOGRAPHY METHOD

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Abstract. This thesis describes the application of the thin-layer chromatography (TLC) method for assessing the identity of aescin and L-arginine substances. The study was carried out under laboratory conditions in accordance with the requirements of the State Pharmacopoeia of the Republic of Uzbekistan and the European Pharmacopoeia. Separate mobile phases were selected for aescin and L-arginine, and the R_f values of reference and test samples were compared. The obtained results demonstrated that the identity of the tested substances corresponded to the reference standards. The TLC method was confirmed to be a rapid, reliable, and effective approach for pharmaceutical quality control.

Aim of the study. To identify aescin and L-arginine substances using the thin-layer chromatography method and to evaluate their compliance with pharmacopoeial requirements.

Materials and methods. TLC analysis was performed on silica gel-based chromatographic plates. For aescin, a mobile phase consisting of chloroform–glacial acetic acid–methanol–purified water (60:32:12:8) was used, while for L-arginine a concentrated ammonia solution–2-propanol (30:70) system was applied. For spot visualization, ferric (III) chloride reagent was used for aescin and a ninhydrin solution was used for L-arginine.

Results and discussion. Chromatograms of the reference and test samples of aescin and L-arginine produced spots of identical color. The coincidence of R_f values confirmed the identity of the substances. No foreign impurities were detected using the TLC method.

Conclusion. The thin-layer chromatography method is an effective and pharmacopoeia-compliant approach for the identification of aescin and L-arginine

substances. This method can be widely applied in the quality control of pharmaceutical substances.

Keywords: aescin, L-arginine, thin-layer chromatography, TLC, identification, pharmacopoeia.