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Development and Validation of Assay and Stability-Indicating of gamma-Aminobutyric Acid in Tablets by Micellar Thin-Layer Chromatography

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A micellar thin-layer chromatography (TLC) method has been developed and validated for the determination of gamma-aminobutyric acid (GABA) in pharmaceutical formulation "Aminalon" (coated tablets). Aqueous micellar mobile phase contained 0.005 mol·L^{-1} of non-ionic surfactant Brij-35, adjusted to pH 2.0 with hydrochloric acid was used for GABA separation. The reaction with ninhydrin was applied for visualization of chromatographic spots. The developed micellar TLC method allows assaying GABA in 20 min. The method was validated with respect to linearity, specificity, accuracy, precision and robustness. GABA response showed good linearity in the range of 240–360 μg·mL^{-1}, LOD and LOQ were 8.3 μg·mL^{-1} and 25 μg·mL^{-1}, respectively. The average %RSD value did not exceed 1.0%. The method is accurate, reproducible, cost-effective, and can be used in routine quality control analysis and for stability-indicating analysis.

Keywords: gamma-aminobutyric acid, aminalon coated tablets, micellar thin-layer chromatography, method validation