

**THERMODYNAMIC PARAMETERS OF PROTOLYTIC EQUILIBRIA FOR SOME AMINO ACIDS AND DIPEPTIDES IN AQUEOUS SOLUTIONS***Gridchin S.N.*Ivanovo State University of Chemistry and Technology  
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This work presents results of investigations of acid-base interaction processes in aqueous solutions of homoserine, cysteine, taurine, asparagine, glutamine, valyl-valine, valyl-leucine, valyl-glycine, leucyl-glycine, leucyl-leucine,  $\alpha$ -alanyl-leucine, isoleucine,  $\alpha$ -alanyl-isoleucine, methionine, norvaline, glycyl-norvaline, glycyl-methionine, glycyl-histidine,  $\alpha$ -alanyl-histidine,  $\alpha$ -alanyl-methionine,  $\alpha$ -alanyl-serine,  $\alpha$ -alanyl-glycine,  $\beta$ -alanyl-glycine, glycyl- $\beta$ -alanine, glycyl- $\alpha$ -alanine, glycyl-valine, glycyl-leucine, glycyl-serine, glycyl-threonine, glutamic, glycyl-glutamic and glycyl-aspartic acids.

Thermodynamic parameters ( $\log K$ ,  $\Delta G$ ,  $\Delta H$ ,  $\Delta S$ ) of protolytic equilibria have been determined at 298.15 K and at ionic strength values from 0.1 to 1.5 M ( $\text{KNO}_3$ ). Stepwise dissociation constants of these compounds were determined potentiometrically. The heat effects of the relevant equilibria were measured calorimetrically. The influence of "background" electrolyte concentration on the thermodynamic parameters for the protolytic equilibria investigated was under consideration. The data obtained were extrapolated to the zero ionic strength. The corresponding thermodynamic quantity values have been calculated for the standard solution ( $\log K^\circ$ ,  $\Delta G^\circ$ ,  $\Delta H^\circ$ ,  $\Delta S^\circ$ ). The results have been compared with the corresponding data on related compounds (amino acids, complexones, dipeptides and diamines) investigated in this laboratory earlier [1-5]. A plausible explanation of changes in these quantities has been suggested in view of the aminocarboxylate structure, its set of functional groups, distance between carries of positive and negative charges, solvation features of zwitter ions, presence of hydrophilic and hydrophobic fragments ( $\text{CH}_2\text{COOH}$ ,  $\text{CH}_2\text{CONH}_2$ ,  $\text{CH}_2\text{CH}_2\text{COOH}$ ,  $\text{CH}_2\text{CH}_2\text{CONH}_2$ ,  $\text{CH}_2\text{OH}$ ,  $\text{CH}_2\text{C}_3\text{H}_3\text{N}_2$ ,  $\text{CH}(\text{CH}_3)\text{OH}$ ,  $\text{CH}_2\text{CH}_2\text{OH}$ , H,  $\text{CH}_3$ ,  $\text{CH}_2\text{SH}$ ,  $\text{CH}(\text{CH}_3)_2$ ,  $\text{CH}_2\text{CH}_2\text{SCH}_3$ ,  $\text{CH}_2\text{CH}_2\text{CH}_3$ ,  $\text{CH}_2\text{CH}(\text{CH}_3)_2$ ,  $\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$ ).

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*This research was funded by the Ministry of Science and Higher Education of the Russian Federation in accordance with a state assignment, project FZZW-2026-0005.*