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# Effect of Temperature on the Surface Properties of Aqueous Solution of Arachidonic Acid

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The surface tension of aqueous solution of arachidonic acid (AA) was measured with a Du Nöuy tensiometer at pH 7.80 and various temperatures, and the effect of temperature on the surface properties of AA was investigated. The value of critical micelle concentration (cmc) of AA increased and the surface tension at the cmc, $\gamma_{cmc}$, decreased as the temperature was raised from 30 to 60°C. The Langmuir constant $k$ concerning the strength of adsorption decreased, the saturated adsorption amount of AA, $\Gamma_{\infty}$, at the air–water interface decreased, and the area occupied by an AA molecule at the saturated adsorption, $A_{\infty}$, increased as the temperature was raised. The standard free energy for the adsorption, $\Delta G_{ad}$, was of negative value, and the absolute value $|\Delta G_{ad}|$ became larger as the temperature was raised because of the negative value of the standard enthalpy change $\Delta H_{ad}$ and the positive value of the standard entropy change $\Delta S_{ad}$. The standard free energy of micellization, $\Delta G_m$, was of negative value, and it was similarly found that $|\Delta G_m|$ became larger as the temperature was raised because of the negative value of the standard enthalpy change $\Delta H_m$ and the positive value of the standard entropy change $\Delta S_m$.

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