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Effect of infrared radiation on antioxidant activity of plant raw materials and structured water adsorbed in them

© **Anatoly A. Lapin**,[1] and **Valery N. Zelenkov**[2]
[1] *Department "Aquatic Resources and Aquaculture". Kazan State Power Engineering University. Krasnoselskaya St., 51. Kazan, 420066. Tatarstan Republic. Russia.*
Phone: +7 (843) 519-43-53. E-mail: lapinanatol@mail.ru
[2] *Department "Physicochemical Biology and Innovation."RANS. Moscow. Russia.*

*Supervising author; +Corresponding author

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Abstract

Samples of flowers and leaves of meadowsweet (Filipendula ulmaria) were dried completely by infrared irradiation using humidity analyzer *MX-50*. The temperature mode used was 150°C. Sampling occurred after 5, 10, 15, 20, 40 and 60 minutes. Calculated total antioxidant activity (TAA) of samples enlarged six times with the increase of drying duration. TAA of leaves reduces as a rule except mode of irradiation during 20-40 minutes when it increases 6.5 times. Calculated TAA is a negative value after drying meadowsweet flowers for 15-20 minutes; with leaves it can be observed in the interval of irradiation 15-20 minutes. TAA of structured water adsorbed by meadowsweet samples is 11 times higher for flowers and 27 times for leaves as compared to ordinary liquid water. By calculated negative TAA values of flowers and leaves it increases 22 and 788 times. In the oxidation of aqueous extracts of samples we detected TAA synergistic effect.