Thematic area of our work ("Nano chemistry and biotechnology")

Artificial Neural Networking (ANN) Model for the Study of Viscous Fluids in Macedonian Dairy Farms

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In the present research work an attempt has been made to obtain some important facts for the viscous properties i.e. viscosity in the raw milk and whey of the Holstein-Friesian cow's milk. The samples were collected from two private dairy farms in Pelagonia, Republic of Macedonia. We have used neural network (N-N) model and artificial Intelligence (IA) technique for the prediction of the quality and properties of raw milk and whey samples. The findings of N-N model and IA techniques are found to be in good agreement with the samples collected from dairy farms. The measured viscosities for both the samples raw milk and whey were measured between pH 5.7 and 6.5, and not affected by any cause. The effect of pH on viscosity of the commercial unprocessed wheys appeared insignificant under pH conditions likely to be encountered in whey processing.

A typical multilayer neural network (N-N) programming model is represented in "Fig. 1". It consists of an input layer and an output layer with various numbers of nodes, so called neurons in each layer. In the present work, we use the multilayer perception program developed in the MATLAb. Here, we have applied three input parameters, measured directly from the raw milk of Holstein-Friesian cow's in our dairy farms: milk fat, protein and pH values of milk. After the completion of computer programming, we get one output parameter that is simulated values of the

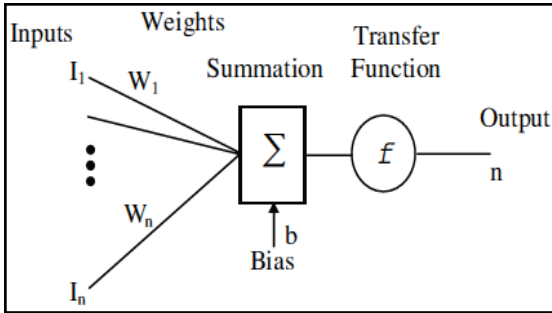various factors corresponding to the experimental data.
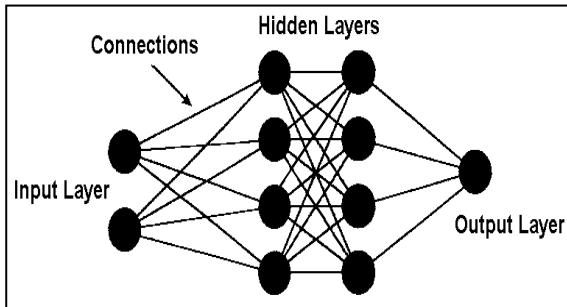

Fig. 1: Neuron structure

Fig. 2- Multilayer perception neural network architecture

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