

CONTRIBUTIONS REGARDING THE BEHAVIOR OF THE PLASMA BELOW INFLUENCE OF TECHNOLOGICAL PREVAILING FACTORS

LEONTE MIHAI, DOMNICA CIOBANU, TULBURE MONICA, PAVEL EDUARD
GEORGE

University of Bacau, Mărășești Stret, no. 157, cod 600115
University of Iași, str. D. Mangeron no. 67, cod 700050

ABSTRACT: The sanguine plasma from the blood stabilized with polyphosphate sodium represents an important source of gelatinization and emulsification, for the meat industry. The stability of functional features for the sanguine plasma is possible in conditions of temperature, addition of chloride sodium and the duration of respective treatment, the temperature of 40 °C, the duration of 10 minutes and an additions of chloride of sodium of 0, 6 Mol L.

KEYWORDS: sanguine plasma, protein, albuminoid.

1. INTRODUCTION

The good account of by-product with pollutant character represents the efficient solution for environment protection indispensable for meat industry. Is known that the blood composition, the functional features make the blood a source of raw material obtains for the sanguine plasma, and the functional property of the albuminoid protein components.

The sanguine plasma is utilized like liquid form, concentrate, flakes of ice, dried, in the sector of meat industrialization and in another sectors of the food industry. The sanguine plasma is form by a raise level of protein, albumins, globuline, with emulsification, of stabilize property when these are compounds in the technological recipes.

In good conditions known that the albuminoid from sanguine plasma have and a good capacity of summers, at the concentration of 1,7 g 100 ML from food complex.

One from most important property of albuminoid from the composition of the sanguine plasma is the appropriation formed to heating gels. The temperature must be of 70 – 75 °C, which appropriation presents the interests in cans of ham. In the gel is included the fats from composition with the stabilized, qualitative and quantitative of complex formation.

The operation of drying sanguine plasma proceeded of this concentration; with the formation of the gels is a discommodity, facts which enforced the limitation of temperature, concentration, and the addition of chloride sodium and the duration of treatment, factors considered dominant and decisive in the realization of the desideratum enforced in the realization research.

2. MATERIALS AND METHODS

The work follows the settlement of the influence of the addition of chloride of sodium, of the temperature and the duration of treatment conditions which are free variables the features of the plasma: the viscosity, contained in soluble albuminoid, property examine as the dependent variables.

The program was the settlement of the correlation of the time temperature and these implications about stability of the albuminoid proteins.

For the realization of the research program was utilized liquid separate sanguine plasma from blood stabilized with polyphosphate sodium and tinned to the temperature of 4 °C. The composition of sanguine plasma is rendered in the table no.1.

Table 1. The chemical composition of sanguine plasma

Chemical indicator	Determined value
Total nitrogen %	1,224
Proteins %	7,85
Lipids %	0,1
Minerals salt %	1,7
Water %	73,1
Soluble proteins Lowy %	7,5

The experimental works had to base the program beginning in the system centered compound rotator of the order 2.

For the determination of the characteristics of dependent variables used was a standard method in operation.

In the compound system rotator of the order 2, they achieved 20 experiences.

For the study of the influence of free variables (X1, X2, and X3) of parameters about qualitative characteristics can define the stability of sanguine plasma. Was utilized the graphic method, the dependent variables are determinate by a general equation of regression, in which: b_0 , b_i , b_{ij} , b_{ii} are the coefficients of the regression equation.

$$y = b_0 + b_i x_i + b_{ij} x_i x_j + b_{ii} x_i^2 \quad [1]$$

In the table no.2 is rendered the equations of regression for the dependent variables y tacked.

Table 2. Regression equations of experimental program

Dependent variable	Regression equations
Viscosity, y_1	$Y = 2,11 + 1,07x_2 + 1,35x_3 + 1,87x_1^2$
Content of total proteins, %	$Y = 8,75 - 5,5x_1 - 9,25x_1x_2 - 9,21x_1^2 + 7,08x_2^2$
Content of soluble proteins, %	$Y = 6,9 + 1,25x_1 - 5,47x_1x_2 - 5,11x_3$

3. RESULTS AND DISCUSSIONS

Analyzing the graphic representations, the figure 1,2 and 3 with the influence of solution of NaCL concentration, about viscosity to the substratum consisted a growth of viscosity, when the concentration is 15 M and an easy decrease when the concentration in NaCL is 20 M.

Structural modifications are limited to intent the maul plough have else little of 15 M NaCL are confirmed and of the evolution of soluble which albuminoid protein, reacts with the ions Cu^{2+} and with reactive Folin Ciocăltău.

Give analytically obtained with advert to the modification viscosity of the plasma indicates a behavior differentiated depending on a level of temperatures where is maintained the plasma, the viscosity breeds as temperature of 60°C , there the plasma completely gelatinized.

Contained of total and soluble albuminoid protein decrease by the growth of the temperature and concentration of NaCL, 25 ML and the aisle of temperature is $55 \div 60^\circ\text{C}$, can be considered criticize.

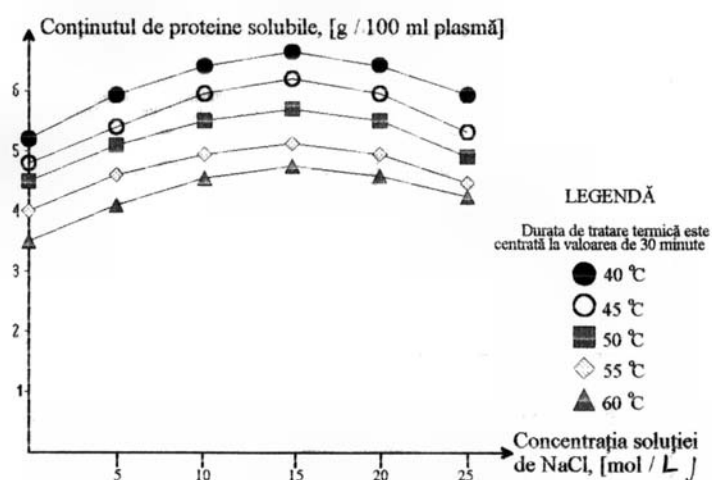


Fig.no.1. The variation to the content of soluble albuminoid depending on concentration of the solution of NaCL and the temperature of reaction

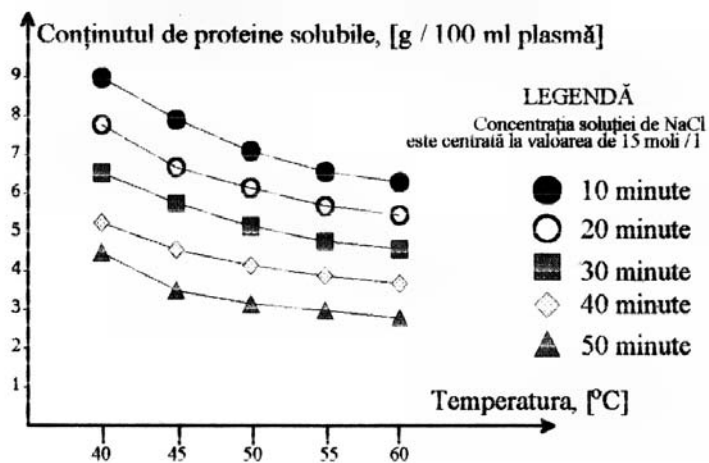


Fig.no.2. The variation to the content of soluble albuminoid depending on the temperature and the duration of reaction

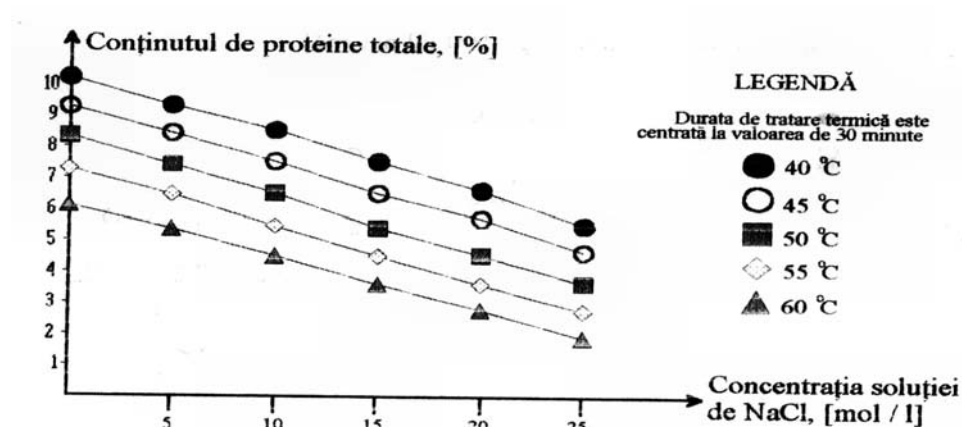


Fig.no.3. The influence of concentration solution of NaCl and the temperature about the content of total albuminoid protein

4. CONCLUSIONS

The stability of functional features for the sanguine plasma is possible in determinate conditions of temperature, addition of chloride of sodium and the duration of treatment, respectively: temperature of 40 °C, the duration of 10 minutes and an addition of chloride sodium of 0,6M L concentration.

BIBLIOGRAPHY

- [1] Banu, C., Vizireanu, C., - *Aspecte ale bioingineriei proteinelor*, Editat Universitatea „Dunărea de Jos” Galați, 1996
- [2] M. Macoveanu, Carmen Teodosiu, Gh. Duca – *Epurarea avansată a apelor uzate conținând compuși organici nebiodegradabili*, Ed. GH. Asachi, Iași, 1997
- [3] M. Negulescu, *Epurarea apelor uzate industriale*, Ed. Tehnică București, 1989, vol. I