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**RESEARCH ARTICLE**

# On Prognosis of Processing of Agricultural Products

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## ABSTRACT

In this paper, we introduce a model for prognosis of processing of agricultural products. Furthermore, we introduce an analytical approach for analyzing the introduced model.

**Key words:** Analytical approach for analyzing, model for prognosis of processing, processing of agricultural products

## INTRODUCTION

One of the actual questions of the development of economic is the food security of the regions. One of the directions of ensuring food security is the timely processing of agricultural products. To ensure the considered timeliness, its forecast is of interest.[1-6] In this paper, an analytical method of its analysis is proposed for the forecast of the processing of agricultural products was presented. For obtaining of the timeliness, it is attracted an interest in appropriate prognosis.[1-6] In this paper, we introduce a model for processing of agricultural products and an analytical approach for the prognosis of the model.

## METHODS AND RESULTS OF ANALYSIS

Let us consider the following model for processing of agricultural products with an account of changing of the quantity of the considered products $N(t)$ with time $t$

$$\frac{dN(t)}{dt} = -\alpha(t)N(t) - \beta(t)N(t) + \gamma(t)N(t) \quad (1)$$

The first term in the right side of the equation (1) describes the processing of the considered products. The second term in the considered part of the above equation describes the deterioration of properties of the processing agricultural products. The third term of the considered equation describes the receipt of new products for processing. The considered equation should be complemented by initial condition

$$N(0) = N_0. \quad (2)$$

Equation (1) could be solved in the framework considered in Ref.[7] approach and could be presented in the following form

$$N(t) = N_0 \exp\left\{\int_0^t \left[\gamma(\tau) - \alpha(\tau) - \beta(\tau)\right] d\tau\right\} \quad (3)$$

Typical dependences of the quantity of processed agricultural products are presented in the Figure 1. All dependences were obtained for constant values of parameters $\alpha$, $\beta$, and $\gamma$. Dependence № 2 takes into account getting of new batch of agricultural products for processing.

The reference standards for Mupirocin and Beclomethasone dipropionate, employed throughout the experiment, were generously provided as gift samples by Glenmark Pharmaceuticals Ltd., based in Mumbai, Maharashtra, India. The commercially available formulation, Supirocin B plus® ointment,

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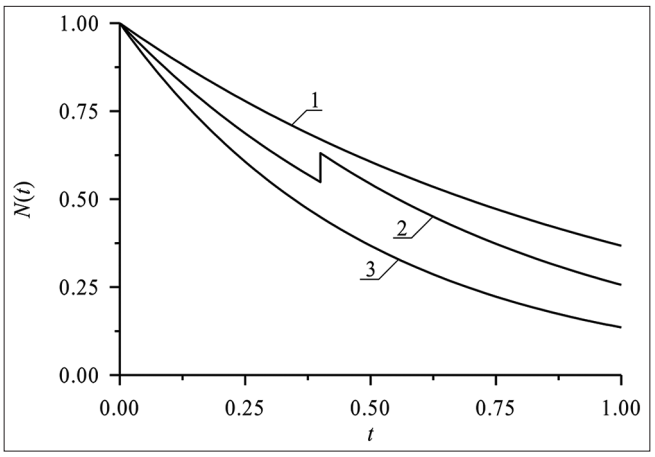


**Figure 1:** Typical dependence of quantity of processed of agricultural products

manufactured by Glenmark Pharmaceuticals Ltd. in Mumbai, India, and containing 2% mupirocin and 0.025% beclomethasone dipropionate, was sourced from the market. Methanol and acetonitrile of analytical reagent and high-performance liquid chromatography grades, essential solvents for the experiment, were procured from Merck Specialties Pvt. Ltd. in India.

## CONCLUSION AND SUMMARY

In this paper, we introduce a model for the prognosis of processing of agricultural products. Furthermore, we introduce an analytical approach for analysis of the model. Some dependencies of dependence of the quantity of processed agricultural products were analyzed.

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