

Stability of Model Reaching Adaptive Control Law and its Verification on a Quarter Car

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The aim of this study is to investigate the stability of model reaching adaptive control law on a quarter-car active suspension system. Initially, the damping coefficient of the system is assumed to be negative in order to have unstable system. Afterward, the sprung mass is increased in the 4th s by 2260 kg (in total 2500 kg). Finally, the spring is chosen as non-linear to see the performance of the controller in case of non-linearity. For all these three cases, computer simulations are carried out and a comparison studies are given. Results are shown both in time and frequency domain. The most striking result is that the proposed adaptive controller works appropriately in non-linear systems even if the system is unstable. It is concluded that the controller make system more robust.

Keywords: Active Suspension, Non-linear Spring, Robustness, Model Reaching Adaptive Control.

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Tehnološki i zdravstveni aspekti primjene kuhinjske soli u pekarskoj proizvodnji

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Kuhinjska so, po hemijskom sastavu natrijum hlorid, jedno je od najrasprostranjenijih jedinjenja u prirodi. Koristi se u ishrani ljudi već hiljadama godina jer utiče na formiranje ukusa hrane ali i kao konzervans jer sprečava razvoj nepoželjnih mikroorganizama. Ta njena upotreba dovela je do toga da so maskira prirodni ukus hrane i zbog stvorene navike prirodna hrana čovjeku postaje bez soli neukusna. U pekarskoj proizvodnji so je jedna od osnovnih sirovina. Utiče na: formiranje ukusa proizvoda, pojačava aromu proizvoda, utiče i na boju sredine i kore hljeba, utiče na reološka svojstva tijesta i na izgled i zapreminu hljeba. Visok unos soli u organizam čovjeka se vezuje za poremećaje kao što su: hipertenzija kardiovaskularne bolesti, osteoporozna, karcinom želudca itd. So reguliše održavanje ravnoteže nivoa tečnosti u organizmu pa može da dovede do funkcionalnih poremećaja rada mišića ili do poremećaja u radu nervnog sistema. Takođe, prevelik unos soli u organizam utiče na nakupljanje vode i povećanje tjelesne težine. Svjetska zdravstvena organizacija preporučuje za odrasle dnevni unos soli do 5 grama. Nameće se potreba smanjenja sadržaja soli u hljebu kao osnovnoj životnoj namirnici. Smanjenje sadržaja soli u pekarskim proizvodima se najbolje može postići postepeno. To je neophodno zbog navikavanja potrošača na smanjeni sadržaj soli u hljebu. Takođe, svaki proizvođač svoj tehnološki postupak treba prilagoditi proizvodnji sa izmijenjenom recepturom u pogledu smanjenja doziranja soli.

Ključne riječi: kuhinjska so, ukus, pekarska proizvodnja, smanjenje soli u ishrani.

Technological and Health Aspects of the Application of Kitchen Salt in the Production of Bread

The kitchen is, by chemical composition, sodium chloride, one of the most prevalent compounds in nature. It has been used in human nutrition for thousands of years because it affects the formation of food taste but also as a preservative because it prevents the development of undesirable microorganisms. This use has led to masking the natural taste of food and because of the natural habit, natural food becomes unsuccessful to a person without salt. In bakery production, it is one of the basic raw materials. It affects: the formation of flavor of the product, enhances the flavor of the product, affects the color of the middle and the bark of the bread, affects the rheological properties of the dough and the appearance and volume of bread. High salt intake in the human body is associated with disorders such as hypertension of cardiovascular disease, osteoporosis, stomach cancer, etc. It regulates maintaining the balance of fluid levels in the body and can lead to functional muscular disturbances or to disorders of the nervous system. Also, excessive intake of salt in the body affects the accumulation of water and the increase in body weight. The World Health Organization recommends for adults the daily intake of salt up to 5 grams. There is a need to reduce salt content in bread as a basic food. Reduction of salt content in bakery products can be best achieved gradually. This is necessary because of the habit of getting consumers to reduce the salt content of the bread. Also, each manufacturer should adapt its technological process to modified recipe production in terms of reduced salt dosage.

Keywords: Cuisine, Taste, Baking, Salt Reduction in Nutrition.

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