

NATURAL PRESERVATIVE IN SYRUPS CONTAINING HONEY

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Honey and other bee hive products have special place amongst products of conventional food industry. Due to many positive characteristics of honey its usage is wide and still growing. One of these is production of syrups, where honey is used as sweetener. As it is known, honey demonstrates antimicrobial characteristics; however concentration of honey in syrups is too low to have impact on all potential microbial food spoilers. Therefore, many synthetic food additives are used in food industry to ensure microbiological stability of products. Nowadays, consumer's mentality is changing and is more oriented to natural origins of food and food additives. Thus we decided to replace standard chemical preservatives in syrups with natural antioxidants, such as essential oils and plant extracts.

MATERIALS AND METHODOLOGY

- as natural preservatives were used extract from rosemary, essential oils of citrus and lemongrass in different concentrations and combinations



- modified bioburden test according to European Pharmacopeia 5th Edition - Efficacy of antimicrobial preservation:
 - innoculi were 10^5 – 10^6 micro-organisms per ml of the preparation reduction of growth was determined by counting viable micro-organisms in the inoculated preparations.
 - for bacteria value 3 for Log reduction after 14 days was acceptable
 - for fungi value 2 for Log reduction after 14 days was acceptable
 - growth reduction was examined on three bacterial *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and two fungal *Aspergillus niger* and *Candida* species

RESULTS AND DISCUSSION

- best results were obtained when the combination of rosemary extract, lemongrass essential oil and citrus essential oil was used.
- Best results were obtained when 0,33 % combination of essential oils was used in the final preparation
- microbiological stability was prolonged
- growth of bacteria, yeasts and moulds was reduced



A. niger after 14 days (right)

CONCLUSION

We can conclude that combination of honey and food preservatives of natural origin can successfully maintain microbiological stability of products. Thus, synthetic preservatives can be efficiently replaced with natural food preservatives.