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**Storage temperature as a determinant of safety and sensory
quality in cooked rice**

*Temperatura de depozitare ca determinant al siguranței și calității
senzoriale a orezului gătit*

Cooked rice represents a highly perishable food product due to its elevated moisture content and favorable conditions for microbial growth following thermal preparation. Appropriate storage practices are therefore essential to ensure food safety while maintaining acceptable sensory quality. This study evaluated the influence of storage temperature and duration on the microbiological and organoleptic stability of cooked rice under controlled laboratory conditions. Cooked round-grain rice samples were prepared using standardized boiling parameters and subsequently stored under three temperature regimes: room temperature (+18...+20 °C), refrigeration (+2...+4 °C), and freezing (-18 °C). Microbiological analyses were conducted according to ISO standards, targeting total viable count, Enterobacteriaceae,

Staphylococcus aureus, and *Salmonella* spp., while sensory quality was assessed by a trained panel using descriptive scoring of appearance, aroma, taste, and texture. Results demonstrated rapid microbial proliferation at room temperature, where mesophilic aerobic flora exceeded admissible limits after 24 hours, indicating loss of microbiological safety. Refrigeration significantly slowed microbial development, maintaining acceptable levels up to five days; however, spoilage indicators, including coliform detection, appeared after seven days. Freezing ensured microbiological stability for up to three months, although gradual increases in microbial load were observed during prolonged storage. Throughout the study, pathogenic microorganisms were not detected, confirming appropriate hygienic handling conditions. Sensory evaluation revealed progressive quality deterioration under all storage regimes. While refrigeration preserved acceptable sensory attributes during short-term storage, freezing maintained texture and flavor only during the initial months, with pronounced degradation observed after 90 days due to structural changes associated with starch retrogradation and moisture redistribution. The findings confirm storage temperature as a critical factor governing both safety and consumer acceptability of cooked rice. Practical consumption limits of 24 hours at room temperature, five days under refrigeration, and three months under freezing are recommended to minimize health risks and quality loss.

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