NUCLEIC ACIDS - UNDERRATED FOOD COMPONENTS

Zuzanna Koziara*, Agnieszka Bartoszek

GDAŃSK UNIVERSITY OF TECHNOLOGY

Department of Food Chemistry, Technology and Biotechnology, Gdansk University of Technology, Gdansk, Poland
* Correspondence: zuzanna.koziara@pg.edu.pl

Materials: Animal (chicken leg, breast, liver) and plant (green bean, potato) tissues were analysed. **Methods**: The paraffin block method was applied to prepare microscope slides from the tested food products which were stained with different dyes. The comet assay was used to assess the level of DNA fragmentation in analysed food samples.

More details in: Cieślewicz, J., Koziara, Z., Ćwiklińska, W., & Bartoszek, A. (2021). *Food Analytical Methods*. https://doi.org/10.1007/s12161-021-01988-4

Results

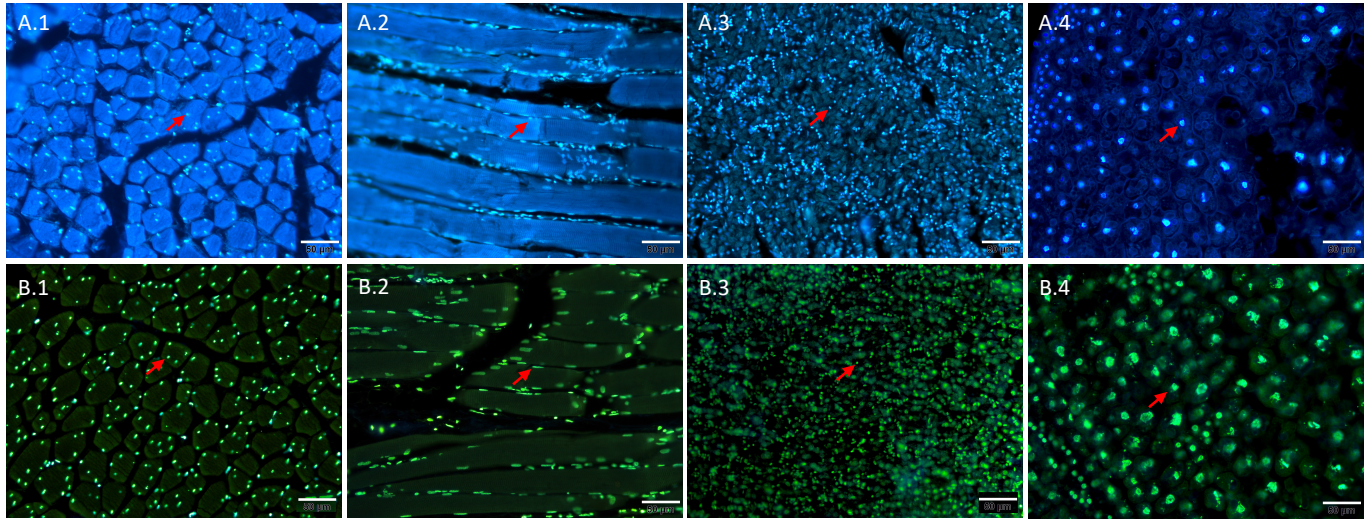
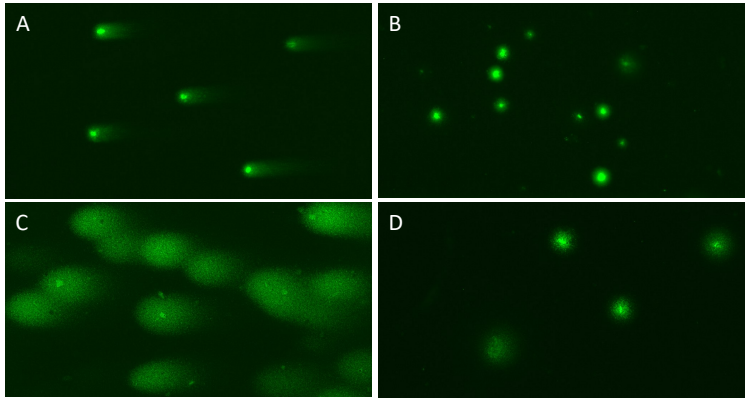


Fig. 1 Microscope images of paraffin-embedded chicken breast (1), leg (2), liver (3) and green bean seeds (4) stained with Hoechst 33342 (A) and SybrGreen (B).



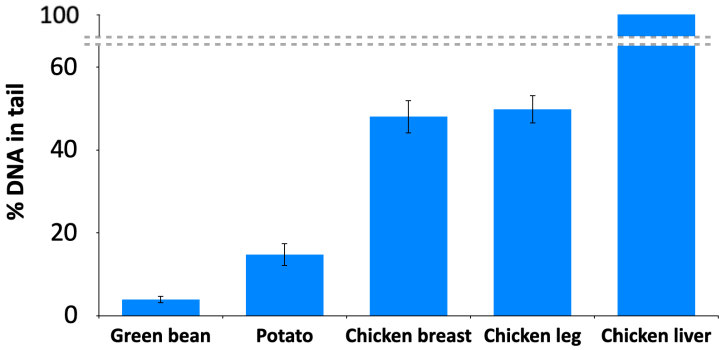


Fig. 2 DNA fragmentation detected by comet assay with SybrGreen staining of nuclei of cells in chicken breast (A), green bean (B), chicken liver (C) and potato tuber (D). Graph presents the comparison of comet assay results expressed as % DNA in tail.

The results of the study revealed significant differences in distribution, size and quantity of cell nuclei (Fig. 1) and nucleic acids integrity (Fig. 2) in tested samples. The level of degradation of nucleic acids in animal tissues was much higher than in plant tissues. Also, differences in chromatin integrity between tissues with different functions (liver compared to the leg and breast) and stage of development (bean seeds compared to potato flesh) were observed.