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Chicken egg whites and DNA

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It is widely known that chicken eggs are an important component for human nutrition and egg whites are a significant source of proteins for nutrition. When studying the composition of egg white, researchers extensively study and discuss the content of proteins and never mention the presence of DNA in it.

This work provides evidence of a possibility to isolate the total DNA from chicken egg whites. Total DNA yield have been varied from 0.73 to 0.85 µg from 1 ml of an outer thin white of an egg. It is not enough DNA in extracted DNA samples which could be able to see on an agarose gel, however, the presence of the nuclear DNA in extracted total DNA samples has been proved by the 18S ribosomal DNA-based PCR test. Moreover, the specific ribosomal PCR fragment of 97 bp have been cloned and sequenced for three breeds, and sequence analysis has revealed 98.97% identity (with one replacement C17 → T17) with 18 sequences of Gallus gallus 18S ribosomal RNA gene from GenBank.

Hoechst 33342 are widely used for labeling DNA in cells and allow visualizing of nuclei in interphase or in mitotic stages. In this work, it has been received Hoechst 33342 stained images of nuclei of outer thin white cells to prove that outer thin whites of chicken eggs contain cells. So, this study shatters the misconception that there are no cells, and no DNA in chicken egg whites.

Speaker Biography

Irina Mikhailovna Zyrianova studied Cytology and Genetics at the Tomsk State University, Tomsk, Russia, and graduated with MS in 1985. She then studied Chemistry at the Moscow State University and finished with PhD in molecular biology in 1993. Afterward, Irina worked at the different Russian Research Institutions and participated in Postdoc programs at Reading (England) and Miami (USA) programs. Since joining the Institute for Innovative Biotechnologies in Animal Husbandry, she has been involved with studies of polymorphisms and phylogeny of genes and proteins of viruses and farm animals and birds. She has published eight research articles in SCIE journals.

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