

## USEFULNESS OF THE NEW DEVELOPED “COMETA 5.1” SOFTWARE IN THE ANALYSIS OF COMET ASSAY NUCLEOIDS: COMPARISONS WITH KOMET5

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There are, currently, numerous software tools available to analyze DNA damage in nucleoids of the comet assay. Although some of them are free-to-use, those that offer the best features and reliability are protected under commercial license and must be purchased at rather high prices. In addition, even the commercial ones present problems in the recognition of some nucleoid heads and, moreover, results depend on the program user.

We are developing new software for the analysis of comet results, “Cometa 5.1”. The key features of this new software are essentially three: an automatization in the process of selecting the areas containing nucleoids, a better determination of the head areas and a new and user-friendly interface. With them, the user goes through the assay photographs in a fast and reliable way, reducing time and especially subjectivity. Additionally, when the automatic determination fails, the user can manually select the area of the comet and reposition the head center.

The performance of this software was checked against the commercial Komet 5 (Kinetic Limited, UK). Although results demonstrated that there were not differences on the decision about treatment genotoxicity, in terms of operation time the developed software was the most efficient one, due to its comet recognition system; in the manual, or interactive, use it was more objective and reliable; finally, it allowed the analysis of rather damaged cells.