Study of morphological alterations of the nucleus of cancer cells by aloe emodin and hydroxyanthracene derivatives

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Author Research:

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Abstract:

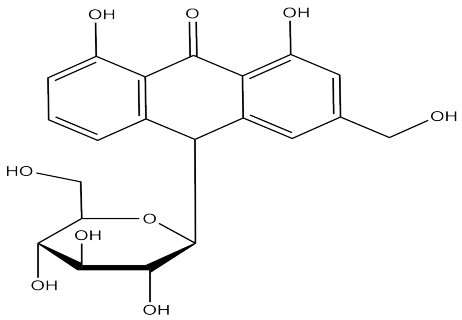
The study in question wants to analyze the effects caused by the inoculation of Aloe Emodin and Aloin at the level of the cell nucleus after the mutation of the cells by the single hydroxyanthracenic molecules in neoplastic cells. In this study, the transformation of normal cells into cancer was caused by hydroxyanthracene derivatives (HAD) isolated from Aloe ferox L., these molecules.

Introduction:

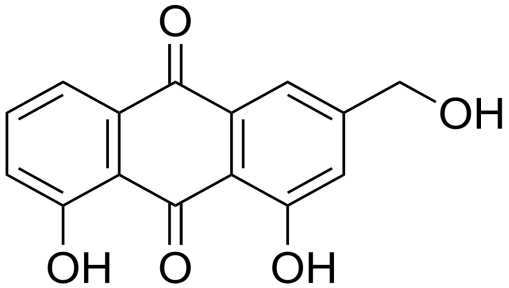
In Cancer Cells, unlike normal cells, there is the absolute annihilation of the biological order!
The first evidence of this is certainly the ability of the neoplastic cell to evade the checkpoints in the control tapes of its cell cycle and evidence of morphological change in the nucleus resulting from an intense synthesis activity.

Research:

Using cytotoxicology techniques, I developed tumor formations in Saccharomyces Cerevisiae cells after the inoculation in culture medium of molecules of Aloe Emodin and Aloin isolated from Aloe ferox L. which showed a strong nuclear activity as usual in cancer cells.



Aloin



Aloe Emodin

This study aims to analyze nuclear activity and try to compare the genetic mutations that occurred in the biological model used with possible complementary genes present in human cells.

NUCLEAR ACTIVITY CARCINOGENIC CELLS:

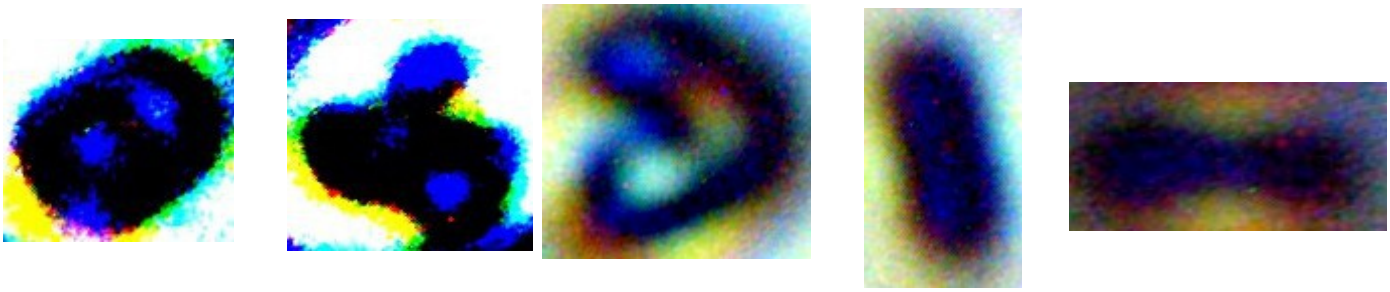


Fig.1

The mutagenic action of the single molecules of Aloe Emodin and Aloin must be sought against the HOG1 gene of the Saccharomyces yeast which corresponds to the homologous gene for humans MAPX14 (Fig. 2) responsible for gastric and breast cancers as well as for the promotion of metastatic forms.

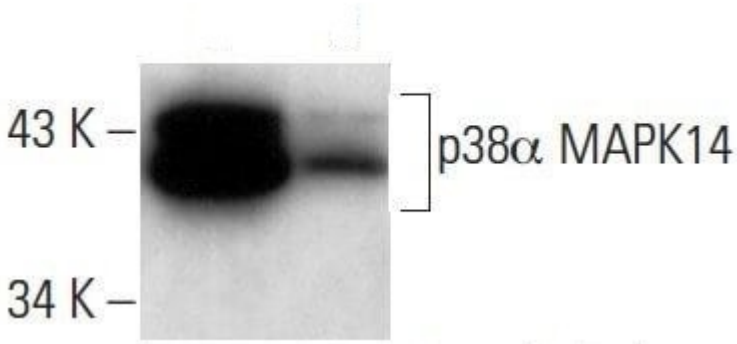


Fig.2 Gene MAPK14

NUCLEUS NON-NEOPLASTIC NORMED CELLS:

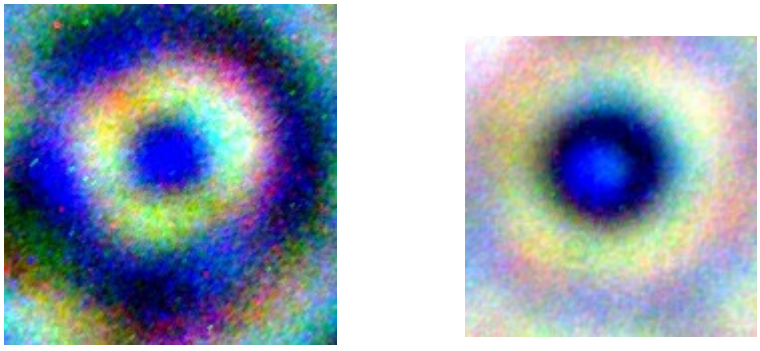


Fig.3

As can be seen from the microscopy images (Fig.1.) , there is a modification of the nucleus compared to the images of normal cells (Fig.3) where the cell nucleus appears to be of regular shape roundish while in the neoplastic cells there is an evident polymorphism and the chromatin appears thickened with the presence of invaginations on the MAC nuclear membrane due to possible alterations of the nuclear foil LDI.
The Nucleus / Cytoplasm ratio is clearly in favor of the former, occupying more space reserved in the norm for the cytoplasm.

Cell proliferation activity in cancer cells appears as obvious accentuated while the metastatic process is under study, the carcinogenic activity of the hydroxyanthracenic substances mentioned above is decreased or disappeared when these are taken as a phytocomplex of the plant extract, probably this is due to an interaction between the various molecules of the extract.

Conclusion:

This study demonstrates that the single molecules of hydroxyanthracene derivatives can cause carcinogenic and mutagenic effects at the level of the nucleus, but these effects are mitigated or not manifested if these molecules are taken as a phytocomplex of the plant extract, evidently for a reciprocal interaction between molecules which mitigates the mutagenic effects.

References:

The study was conducted by Paolo Pelini, Expert in Pharmacognostic, In Vitro Cytotoxicological Research on Plant Extracts.
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