



## AperTO - Archivio Istituzionale Open Access dell'Università di Torino

## Sister Chromatid exchange (SCE) test in river buffalo cells treated with Furocoumarins.

This is the author's manuscript
Original Citation:
Availability:
This version is available http://hdl.handle.net/2318/150196 since
Published version:
DOI:10.1007/s10577-014-9435-7
Terms of use:
Open Access
Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)



## UNIVERSITÀ DEGLI STUDI DI TORINO

The final publication is available at Springer via http://dx.doi.org/(10.1007/s10577-014-9435-7)

## Sister chromatid exchange (SCE) test in river buffalo cells treated with Furocoumarins

<u>A. lannuzzi<sup>1</sup></u>, A. Perucatti<sup>1</sup>, V. Genualdo<sup>1</sup>, A. Pauciullo<sup>1</sup>, L. Pucciarelli<sup>1</sup>, D. Incarnato<sup>1</sup>, R. Melis<sup>2</sup>, C. Porqueddu<sup>2</sup>, M. Marchetti<sup>3</sup>, L. lannuzzi<sup>1</sup> (alessandra.iannuzzi@ispaam.cnr.it)

<sup>1</sup>National Research Council (CNR), Institute of Animal Production Systems in Mediterranean Environments (ISPAAM), Laboratory of Animal Cytogenetics and Gene Mapping, Naples, Italy; CNR-ISPAAM, UOS-Sassari, Italy; CNR-ICB, UOS-Sassari, Italy

Cytogenetic test can be very useful to detect chromosome (genome) fragility in both animal and human cells. Furocoumarin derivatives constitute a class of compounds widely investigated for the development of photo-chemotherapeutic drugs and effective in treating many diseases. The interest inside this research field originated from the effectiveness of PUVA therapy, realized by oral or topical administration of a linear furocoumarin (psoralen) followed by irradiation with UVA light, for the treatment of psoriasis and cutaneous T-cell lymphoma. Furocoumarins are also present in Psoralea plants elected to be also used as alternative feed for animals considering that it's a perennial leguminous and, more important, it's green during the summer time. In the present study we report the preliminary results obtained using the SCE-test in river buffalo cells exposed in vitro to furocoumarin extracts from a Sardinian population of Posoralea morisana (L.) Stirton (Punta Giglio,). Peripheral blood samples from five young river buffaloes (2) males and 3 females) were incubated at 38°C for 72 h in presence of different quantities of furocoumarin extracts: 0 (control), 50µg/ml, 100µg/ml, 200µg/ml and 400µg/ml. Thirty cells for each cell culture (and furocoumarin dose) were analyzed. Although the cell growth appeared normal in both treated and untreated (control) cells, a significant (P<0.01) higher number of SCEs observed in treated cells, compared to those achieved in the control. On the basis of these results, cells from five river buffalo cows were treated with 0 (control), 100µg/ml and 200µg/ml of furocoumarins for only 3 h after 24 h of incubation, in presence and absence of S9. No statistical differences were found between treated and untreated cells with furocoumarins both in presence and absence of S9.

Acknowledgements. The study has been supported by CISIA-VARIGEAV project, National Research Council (CNR) of Italy.