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

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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.

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