



Hrvatsko biološko društvo
Croatian Biological Society



**ŠESTI KONGRES BIOLOGA
HRVATSKE**

s međunarodnim sudjelovanjem
Opatija, Hrvatska, 22.-26. rujna 1997.

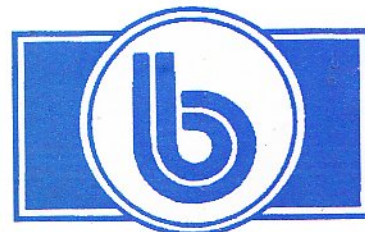


**THE SIXTH CONGRESS OF
CROATIAN BIOLOGISTS**

with international participation
Opatija, Croatia, 22-26 September 1997



**ZBORNIK
SAŽETAKA PRIOPĆENJA**



**PROCEEDINGS
OF ABSTRACTS**



Zagreb, 1997.

experiments all the animals after being injected with different number of tumor cells (anaplastic carcinoma) were exposed to oxygen under pressure of 300 kPa (3 ATA) in a Comex animal recompression chamber with a 390 l volume and 50 bars working pressure. Effects of hyperbaric oxygen (HBO) on metastasing of intravenous injected anaplastic carcinoma (ACa) cells were evaluated by counting of metastases on the lung surface, registering the surviving time of all animals and testing the response to different nonspecific mitogens. The results showed that the average number of metastases found in experimental group (treated with hyperbaric oxygen) was only $1,2 \pm 0,4$. In control group we found $32,2 \pm 3,5$ metastases. Decrease of tumor colonies obtained were highly significant ($p < 0,001$). Similar results were obtained in experiments when animals were injected with 10^4 or 2×10^4 AKA cells. Also during the observation period all animals injected with 10^4 of AKA cells survived more than 100 days. In comparison to the control group the survival time of the animals exposed to hyperbaric oxygen was highly significant ($p < 0,01$). It is important to emphasize that peripheral blood lymphocytes of animals treated with hyperbaric oxygen (after being injected with anaplastic carcinoma cells) showed higher response to three mitogens (PHA, ConA and LPS) in comparison to control (without HBO). This result was similar and/or identical to results obtained with peripheral blood lymphocytes of normal healthy animals without any treatment.

(130)

Nada Oršolić¹, Zoran Tadić¹, Ana Brbot-Šaranović², Ivan Bašić¹

¹Zavod za animalnu fiziologiju, Prirodoslovno-matematički fakultet Sveučilišta u Zagrebu, Rooseveltov trg 6, 10000 Zagreb, Hrvatska

²Zavod za kemiju i biokemiju, Veterinarski fakultet Sveučilišta u Zagrebu, Heinzelova 55, 10000 Zagreb, Hrvatska

Imunomodulatorno djelovanje propolisa: Zaštitni i terapijski učinak na rast tumorskih čvorića u plućima miša CBA

U ovom radu istražili smo zaštitni i terapijski učinak otopine propolisa na broj tumorskih čvorića na plućima miša. Rabili smo transplantabilni karcinom mliječne žlijezde (Mca) miša CBA. Tumor je spontanog podrijetla, slabo imunogeničan za singeničnog primatelja. Tumorske čvoriće u plućima izazvali smo uštrcavanjem 2×10^5 vijabilnih tumorskih stanica u venu. Antimetastatski učinak propolisa istražili smo uštrcavanjem 50mg ili 150 mg/kg propolisa intravenski (iv) ili intraperitonealno (ip) 15, 10 i 5 dan prije unosa tumorskih stanica, odnosno 2, 8 i 12 dana nakon unosa tumorskih stanica. Rezultati potvrđuju da obrada propolisom (iv i ip) smanjuje broj tumorskih čvorića u plućima u odnosu na kontrolu ($P \leq 0,01$). Moguće je da se metastatski učinak propolisa temelji na modulaciji imunološke reakcije primatelja što potvrđuju sljedeći testovi *in vitro*: aktivnost makrofaga i produkcija IL1, reaktivnost splenocita na poliklonalne mitogene (PHA, Con A, PWM, LPS), određivanje broja T i B stanica formiranje E i EAC rozeta, kao i broj hemolitičkih čistina u agaru. Kombinirana zaštitna i terapijska obrada ne daje bolji antimetastatski učinak, što sugerira da doza propolisa može igrati važnu ulogu u antimetastatskoj aktivnosti.

Immunomodulatory action of propolis: Prophylactic and curative activity of propolis against tumor growth in lung of CBA mouse

The prophylactic and curative ability of the water soluble derivat of propolis (WSDP) on the formation of tumor nodules in the lung of mice was tested. Tumor was transplantable mammary carcinoma (Mca) of spontaneous origin, weakly immunogenic to syngenic CBA mouse. Tumor nodules in the lungs of mice were generated by injecting 2×10^5 viable tumor cells intravenously (iv). Intraperitoneal (ip) or iv injection of WSDP containing either 50 mg or 150 mg/kg was given into mice for prophylactic or curative purposes 15, 10 and 5 days before and 2, 8, 12 days after tumor cells inoculation, respectively. Both iv and ip treatments with WSDP, regardless those, suppressed the growth of tumor nodules in the lungs, as compared to control ($P \leq 0.01$). Changes in several immunology parameters *in vitro* such as: peritoneal macrophage activity to produce interleukin-1, response of lymphocytes to polyclonal mitogens (PHA, Con A, PWM, LPS), rosette formation of lymphoid cells with SRBC and plaque forming ability of splenocytes of mice's to sheep erythrocytes, respectively, correlated well with antimetastatic properties of propolis. Combined prophylactic and curative treatment did not facilitate the tumor affect of WSDP, suggesting again that the dose of propolis may play an important role in anticancer activity of propolis.
