

**PROMOTION OF PHAGOCYTOSIS BY
NERIUM OLEANDER EXTRACT****
Preliminary Report

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It has been claimed that the extract obtained from Nerium Oleander (NO) has in many cases significantly prolonged life of patients with metastatic cancer disease where regression has been observed in some cases and total cure in others (7,8). Immunomodulator function observed by Roemer (5) may explain the improvement recorded in many of them. These reports, however, have been opposed by others who maintain that besides the extract being toxic (4,6,10,11) the evidence in favor of NO's beneficial influence on cancer is insufficient (4,6). Still others have collected evidence indicating that it is in proposed doses nontoxic (1,7,9).

We therefore studied the effect imposed by NO on fagocytosis and report its results in this preliminary communication.

MATERIALS AND METHODS

10 ml blood was withdraw from eight fasting dogs between 9 and 10 AM. Each aliquat was divided into 8 samples. The first sample was used for counting blood cells and determining its Hb and hematocrit and for blood smear etc. and routine blood chemistry. The second sample was used as the control: a standard amount of latex

microspheres were added to 1 cc of blood and the mixture was incubated for 20 minutes at 37°C. To the third sample of blood in addition to latex particles of the same number, 5 drops of NO extract was added of which the 4th sample received 2 drops. The fifth received one drop of diluted (1/2) sample of the original concentration. One drop of diluted (1/2) sample of the original concentration. One drop of the following dilutions (1/16, 1/64, 1/128) of NO were added to samples of 1 cc blood of each. After incubation blood smears were done, stained (Wrights) and subgroups of leucocyte were counted (Schilling).

RESULTS

It was observed in the control series (316-N) that 41 neutrophyle leucocytes had ingested a total of 1303 latex particles, $31.4 \pm (se.) 3.7$ per individual cell (Table 1). 10 neutrophyle leucocytes in this group revealed no evidence of phagocytosis while 7 disintegrated neutrophyle leucocytes were observed. Since their remnants were replete with latex particles and because many transitional cells also full of latex were noted, we conclude that they represent leucocytes broken down because of extensive phagocytosis.

Table 1.

	n	\bar{x}	s.e.	Z	P (Mann-Whitney U-test)
316-N	41	31.3	3.7	-	-
316-1	36	61.8	5.0	4.35	$P_{N-1} < 0.001$
316-2	41	45.6	3.7	2.69	$P_{N-2} < 0.001$
316-t	137	35.1	2.9	2.21	$P_{N-t} < 0.05$

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In the second group (316-1) where the blood was incubated in addition to the latex particles with 5 drops of NO there were no neutrophile leucocytes which had not taken part in phagocytosis. A total of 36 neutrophile leucocytes had ingested 2225 latex particles, 61.8 ± 5.0 per cell. In addition there were 43 cells demolished following excessive ingestion of foreign particles. Compared to 316-N group of figures by Mann-Whitney U test Z value was 4.35 and $P < 0.001$.

The 3rd group (316-2) of results were those incubated, in addition to latex, with 2 drops of NO extract. 41 neutrophile leucocytes had ingested a total of 1916 latex particles and 45.6 ± 3.7 particles per cell. The Z value of this group compared to 316-N was 2.69 and $P < 0.001$.

The more dilute solutions (1/2, 1/16, 1/64 and 1/132 of the original concentration) produced practically the same results. We therefore compiled them into one group and termed 316-t where 137 cells had ingested a total of 4807 particles and 35.1 ± 2.9 per cell. Z value of this group was 2.21 and $P < 0.05$.

In conclusion our findings indicate that NO extract at certain concentrations appear to stimulate phagocytosis. This observation indicates that NO extract may promote healing process by virtue of providing more efficient phagocytosis. It is also hoped that under similar conditions the phagocytes may be able to ingest cancer cells more efficiently and contribute to the observed improvement in NO treated metastatic cancer disease (6,7).

It is obvious, however, that more information is needed in this particular point about which we hope to gather further knowledge by the presently on going studies. Mechanism of such a promotion of phagocytosis will be investigated with the established methods currently in use (3,12).

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