

LEVEL OF GOLD IN FEMALE REPRODUCTIVE ORGANS OF FROG

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ABSTRACT

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Total length of reproductive system (ovary, oviduct, uterus and cloaca) of fifteen female frogs (*Rana tigrina*) was analyzed to find out the level of element gold in it, at each level. Gold was present in all tissues; maximum was in cloaca.

Key words – Gold; Female Frog.

Gold was discovered in human semen (Skandhan 1981). It was shown in male reproductive system of man (Skandhan and Abraham 1984) and rat (Skandhan et al., 1992). The presence of gold in reproductive system of female species was not known. In the present study we estimated the level of gold in female reproductive system in an amphibian model, frog (*Rana tigrina*). The laboratory, where the study was conducted was dust free and workers were not wearing any gold ornaments. Contamination by interference of chemicals, dust, rubber and filter paper was excluded. The glassware used for this study were boiled in 6N nitric acid for thirty minutes, washed in single, double and triple glass distilled water and made dry in hot air oven except volumetric glassware. Fifteen adult female frog (*Rana tigrina*) collected from its natural habitat were used in the study.

Ovary, oviduct, uterus and cloaca were dissected out. Tissues of same nature were grouped and weighed

prior to processing. They had undergone slow wet digestion as pre processing method for estimation. The analysis of gold was carried out at Forensic Science Laboratory, Ahmedabad 380 016. Estimation of gold was done by using atomic absorption spectrophotometer (Model – Perkin – Elmer A 373). Acetylene gas and air mixture were the source of flame. A gold cathode lamp was kept at 242.8 nm and slit opening was arranged at 0.7 nm. Sample was fed to the instrument for 10 seconds and the two consecutive same values obtained in digital form were opted as the result. The weight and dilution of tissues were taken into consideration while calculating gold value in total tissue.

RESULTS AND DISCUSSION

Gold was detected in all tissues studied (Table) which was maximum in cloaca followed by ovary, uterus and oviduct. Presence of gold in human semen was demonstrated earlier (Skandhan 1981). Following studies showed gold was present in both seminal plasma and spermatozoa (Skandhan, Amith and Avni 2009; Skandhan et al., 2011). It was also demonstrated in male reproductive system of rats (Skandhan et al., 1992). The source of gold in semen was traced to testis and caput epididymis in case of man by employing atomic absorption spectrophotometer and in rats by means of histologic techniques (Skandhan et al., 1992). X ray diffraction analysis showed gold is present

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throughout the male system in man except in seminal vesicle (Skandhan, Amith and Avni 2009). Administration of Suvarna bhasma (gold ash), an ayurvedic preparation, in rats had shown improved quality of epididymal semen and possibly increased secretion of androgens (Unpublished data). All the above studies show the essentiality of gold for normal function of genital system in male. No report is available showing the presence of gold in any female reproductive system. In the present study we observed gold in all four tissues studied – ovary, oviduct, uterus and cloaca. The values of gold are shown in Table 1.

Maximum amount of gold was in cloaca followed by ovary (Table I). Like in male system gold might be present both inside and outside gamete (Skandhan et al 2011). Cloaca if secreted may be a source of secretion as well as temporary store for the content released from ovary and so where more amount of gold

was seen. (Table I). The results of the study may be showing that the amount of gold present in the tissue is released during the process of ovulation. The amount of gold that was released by female frog may be important for functioning of ova or influencing the sperm motility for sperms present in the surrounding medium of ova. Probably gold functions like a chemotaxic agent and sperms get attracted to ova by this. Thus, gold may have a role in the function of ova and fertilization. No report is available on this line. Clinical (Skandhan, Amith and Avni 2009), experimental (unpublished data) and analytical studies (Skandhan et al., 2010a, 2010b) showed gold is essential for improving the sperm motility in man.

In conclusion gold was present in female reproductive system of frog. It may have a role in the function of fertilization.

Table. GOLD LEVEL IN DIFFERENT TISSUES OF REPRODUCTIVE SYSTEM OF FEMALE FROG.

Name of tissue	Gold in $\mu\text{gm} / \text{gm}$ of tissue
Ovary	2.555
Oviduct	0.3903
Uterus	1.355
Cloaca	3.041
Mean	1.390

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