7.0 CONCLUSION

Drinking arsenic contaminated water in wide area of the world creates a serious unpredictable health hazards to the public. This time it is a drastic challenge to combat against the arsenic mediated curse of several abrupt threats. Among them arsenic is an important toxicant which generates reproductive toxicity and causes dysfunctions of spermatogenesis, diminution of testosterone and gonadotrophins, and disruptions of steroidogenesis. In this study we highlighted the effect of arsenic on female reproductive system and remedy from the arsenic mediated adverse outcomes by supplementation of vit-B_{12} and folic acid. Arsenic causes tissue damage by disintegrating cellular metabolic regulations, modulating antioxidant system, malfunctioning immune competent cells and finally enhancing DNA damages. Effects of chronic ingestion of arsenic resulted preterm abortion, retardant fetal development, including growth retardation, fetal death and infertility of women. The crucial mechanisms of arsenic-induced reproductive disorder may be impaired with an inhibitory action on ovarian steroidogenesis by the modulation of pituitary gonadotrophins, hypophyseal-adrenocortical axis, alteration of reproductive physiology, as well as by the induction of oxidative stress.

All these adverse effects of sodium arsenite are not permanent in type and it comes to the normal level after the cessation of oral intake of arsenic contaminated water. Moreover our data suggested conceptual information that possible arsenic induced adverse effect may be overcome by the co-administration of Vit-B_{12} and folic acid in combination at the dose of 0.07µg/100g body wt. /day and 4µg/100g body wt. /day respectively.

Apart from this investigation of folate and vit-**B_{12}** co-treatment in arsenic-intoxicated female rats may conclude that sodium arsenite at a dose of 0.4 ppm for 28 days, found in drinking water in extensive areas of India, reflects an inhibitory effect on female reproductive organ such as uterus and ovary (along with ovarian steroidogenesis) via the modulation of hypophyseal-gonadal axis along with necrotic changes in cellular level. On the other hand co-administration of these B vitamins supports cellular synthetic mechanism, as well as protects genetic materials. These two B vitamins execute a role of strong prevention of necrotic tissue degeneration, probably by removing arsenic from the ovarian and uterine tissues. This defense was accommodating the regeneration of tissue structural materials and the amino acid pool. The clinical implications of this study express on the immense possibility of combination therapy with important vitamins or other micronutrients or active exogenous ingredients as a nutritional supplement against arsenic-induce organ toxicity and carcinogenesis. However, arsenic is detoxified in the human body during the course of methylation process and methionine plays an imperative role in this. It is suggested that Vitamin B_{12} and folic acid play a decisive role in detoxification of arsenic and mitigate several arsenic-mediated adverse effects on female reproductive physiology, although more extensive study is required in this field. Finally, a hypothesis postulated that this study will be effective in developing a non-invasive treatment strategy among arsenic affected region from the angle of healing arsenic associated reproductive disorders.