Role of Onion in the Fertility Issues: A Review

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Abstract: Onion is a remarkable vegetable with numerous benefits including medicinal properties. Its medicinal properties are known to heal many health issues as it holds properties like being antiallergenic, anti-inflammatory, cardioprotective, vasodilatory, anti-carcenogenic and antioxidant properties. The positive effect of onion on the fertility has also been seen in many studies. Onion seems to enhance fertility related harmones as the LH testosterone levels goes up in rats by its consumption. Antioxidant activity is also seen to contribute in sperm health. Fresh onion bulb juices has also shown positive effects on androgenic activity of FSH, LH, testestrone hormones and spermatogenesis in rats It has been seen that onion consumption restored the damage on fertility in rats that was caused by toxic compounds like cadmium and aluminium. Thus onion can play vital role in improving the fertility issues in human and also in providing protection against infertility.
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Introduction

Onion has been known to cure almost all the diseases and that's why it has very beneficial medicinal uses. The medicinal uses of onion have been known to mankind since ancient civilizations. It is seen that onion can increase and even restore the fertility. The rats that have lost their fertility due to cadmium toxicity have been observed to be able to restore their fertility by onion extract doses by reducing sperm impairment and increasing the weight of testis (Ola-Mudathir *et al*., 2008). The rats that are victims of aluminum toxicity have also been able to restore their fertility by onion extracts treatment. The onion has been seen to increase the FSH and LH levels in these rats and in return their fertility is also increased with enhanced sperm quality (Ige & Akhigbe, 2012). It is seen in normal rats that onion is able to increase the sex harmones testosterone, LH, FSH levels in its fresh juice form thus in turn, the fertility of rats is also increased (Khaki *et al*., 2009). Although onion juice extracts showed its remarkable activity in enhancing the fertility power and reduce fertility related problems, the ethanolic extracts are seen to create antifertility affect in female rats by decreasing the implant sites of uterus in female rats (Thakare *et al*., 2009). The review details the enhancement of fertility that is caused by onion. The onion extract abilities can be used to make new drugs that are natural and have fewer side effects on human health.

Onion role on Fertility issues

Onion has been known to cure almost all the diseases and that's why it has very beneficial medicinal uses. The medicinal uses of onion have been known to mankind since ancient civilizations. The most interesting benefits of onion under investigation are considered as its effect on the fertility. It is seen that onion can increase and even restore the fertility. Many research experiments were conducted on animal models to test the effect of onion.

Restore of Cadmium damaged fertility

Cadmium is a toxic substance that's why it occurs in nature at low concentrations but human activities has increased the accumulation of toxic substances in our environment. (WHO, 1992). The Cd exposure is strongly associated with reproductive toxicity in both animal and human populations culminating in infertility and cancers of the reproductive tissues (El-Demerdash *et al*., 2004; Goyer *et al*., 2004; Akinloye *et al*., 2006). The pathogenesis of testicular damage and spermiotoxicity following Cd exposure is generally ascribed to oxidative damage (El-Demerdash *et al*., 2004; Yang *et al*., 2006). Onions have proteins and antioxidants (glycine, glutathione, vitamins C and E, selenium, b-carotene, quercetin and others) that have been reported to protect against Cd-induced tissue damage (El-Demerdash *et al*., 2004; Yang *et al*., 2006; Shaikh *et al*., 1999; Ognjanovic *et al*., 2003; Asagba *et al*., 2004; Morales *et al*., 2006; Murugavel and Pari, 2007). The effect of onion extracts on the fertility of rats were studied and the onion extract has been reported to have a partially protection system against cadmium toxicity for spermatozoa and testis. The onion extracts has also been reported to restore the sperm impairment and the weight of testis is also increased (Ola-Mudathir *et al*., 2008). It is seen that onion extracts decrease the level of LPO and enhanced the levels of GSH, SOD and

CAT but the increased levels of GST was reduced in testis (Morales *et al*., 2006). The presence of Quercetin in onion is also a key of its protective nature for fertility against Cd damage as quercetin increase the expression of metallothionein that protects against oxidative damage (Kagi, 1991; Kara *et al*., 2005).

Reversal of aluminum-induced reproductive dysfunction by onion

Studies on laboratory animals have shown that Al induces reproductive toxicity and exerts a significant adverse effect on the steroidogenesis (Yousef *et al*., 2005, Yousef & Salama, 2009). Al accumulation has been associated with necrosis of the sperm cells and infertility (Guo *et al*., 2005). Studies have reported Al to block voltage-gated calcium channels,(Büsselberg, 1995, Tse *et al*., 1993) thereby impairing gonadotrophin secretion in the hypophysis (Llobet *et al*., 1995, Domingo *et al*., 1987) with resultant low sperm counts.(Mills *et al*., 1994, Platt & Büsselberg, 1994). It was reported in one study by that was recently conducted S. F. Ige *et al*. (2012) that the damage caused by the aluminium effects can be reversed in male rats by giving a regular dose of onion extract and improves the antioxidant status and sperm quality of male rat. However, testosterone level did not increase with *A. cepa* treatment. The weights of testes were similar in rats that are exposed to aluminium toxicity and rats that are exposed to aluminium toxicity but also treated with onion extracts. The harmones concentration was changed when affected rats with dysfunction reproductory system were treated with onion extracts (Fig. 1). The testosterone was significantly reduced in all treated rats. FSH and LH were significantly increased in A. *cepa*-treated group as compared to rats affected by aluminium (Ige & Akhigbe, 2012).

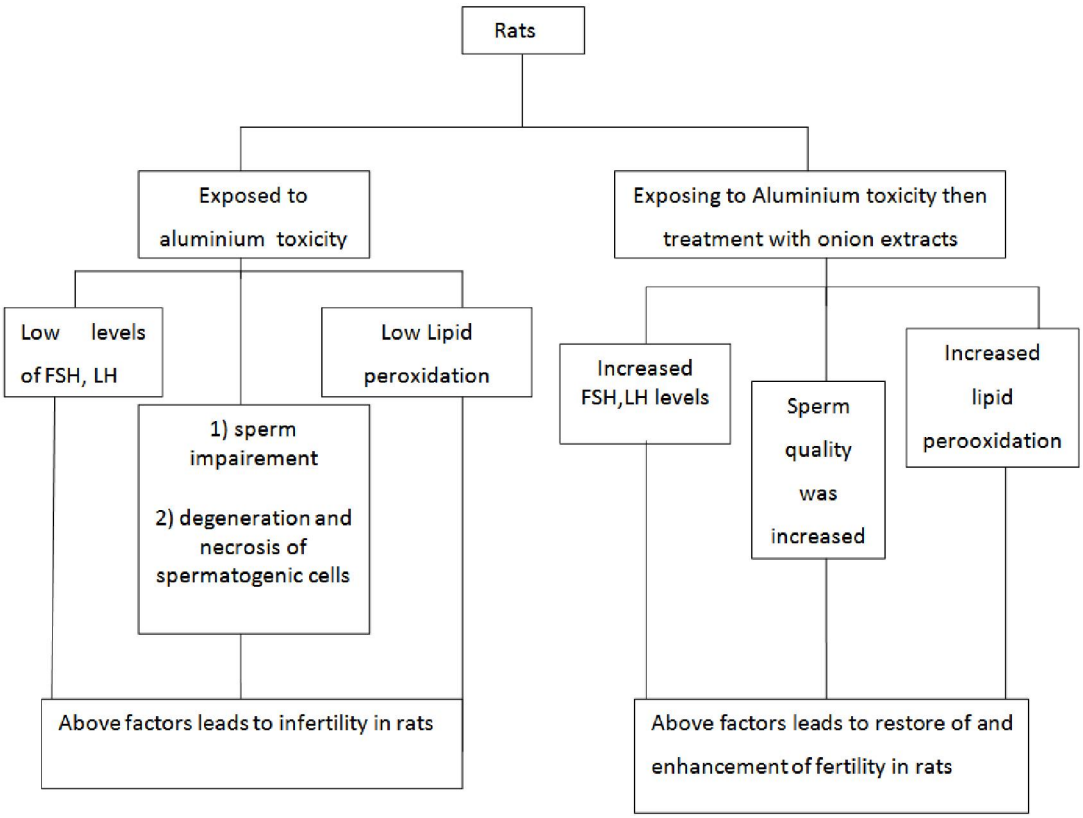

Fig. 1. Flow chart for fertility test in rats

Sperm quality was significantly improved in *A. cepa*-treated rats. Al toxicity caused significant impairment of sperm quality. Sperm quality was significantly enhanced in *A. cepa* + Al rats when compared with Al-treated rats. Al treatment led to degenerative necrosis with degeneration of spermatogenic cells. This effect was milder in *A. cepa* + Al treatment. The rats treated with onion extracts after aluminium toxicity showed the milder recovery from necrosis. *A. cepa* treatment led to significant enhancement of lipid peroxidation status when compared with Al-treated rats which also benefits the fertility (Ige & Akhigbe, 2012).

Onion juice effect on fertility harmones

Onion juice is observed in one experiment and noted that onion increased the fertility related

harmones. The levels of LH, testosterone were significantly increased in the model wistar rats. The effect of onion on these harmones leads to assumption that it can increase the fertility of animals upto a great deal. Antioxidants have essential effect on sperm health parameters. Onion has shown positive effects in a study which was conducted to see the effect of fresh onion bulb juices on androgenic activity of FSH, LH, testestrone hormone and spermatogenesis in rats (Khaki *et al*., 2009). It was reported by Khaki *et al*., (2009) that the onion fresh juice were given to rats in equal amount everyday and it was noted level of FSH did not differ before and after the administration of onion juice. However, serum total testosterone significantly increased in test groups with enhanced motility of sperms, but levels of LH and sperm concentration were significantly elevated only when the high dose of fresh onion juice was administered (Khaki *et al*., 2009).

Ethanolic extracts of onion and their antifertility affect

Although onion extracts showed its remarkable activity in enhancing the fertility power and reduce fertility related problems. It was reported that the antifertility effect of ethanolic extracts of onion. The ethanolic extracts of onion were given to female rats for seven days since the day of their pregnancy (Thakare *et al*., 2009). It was noted that there is no change in ovulation and overy size at the dose of 150mg/kg to 300mg/kg of onion ethanolic extract but there is reduction in implant site at the dose of 300mg/kg in female rats thus onion ethanolic extracts showed the anti-implantation activity in female rats (Thakare *et al*., 2009).

Garlic effect on fertility

The restorative effects of acute and chronic aqueous garlic extract on testicular cellular integrity and serum testosterone levels. Twenty (20) male Sprague-Dawley rats were given garlic extracts for ingestion in one research work and it was noted that the presence of all spermatogenic lineages, appearance of proliferative activities in the interstitial cells and serum testosterone levels was increased. Garlic has been observed to be even more effective then onion in restoring the fertility in animals (Memudu *et al*., 2015).

Onion effects on human fertility

Onions are high in antioxidants and thatswhy they are supposed to increase testosterone production and protect sperm from damage. in human males. Onions are reported to increase sperm number, percentage of viability and sperm motion in human males. Onions can fight insulin resistance which is especially important for women with PCOS which is a main cause of infertility in young human females. Onions enhance libido in both human females and males.

http://simpleantiagingsecrets.com/2014/12/05/onions-work-wonders-for-skin-hair-health-and-fertility/.

Onion juice daily dose is very beneficial in increasing the fertility in humans.

Conclusions

So, onions are miracle vegetable that can be used to make new therupatic medicines as it has high antimicrobial and antioxidant activities that are observed to be a boon for the treatment of many diseases. The onion are seen to increase the fertility in animals test models especially rats by giving them onion juice directly via tubes in their stomachs but full research investigation is not done in humans but this ability of onion can be used to cure fertility related problems in humans by making new drugs which contains onion essence.

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