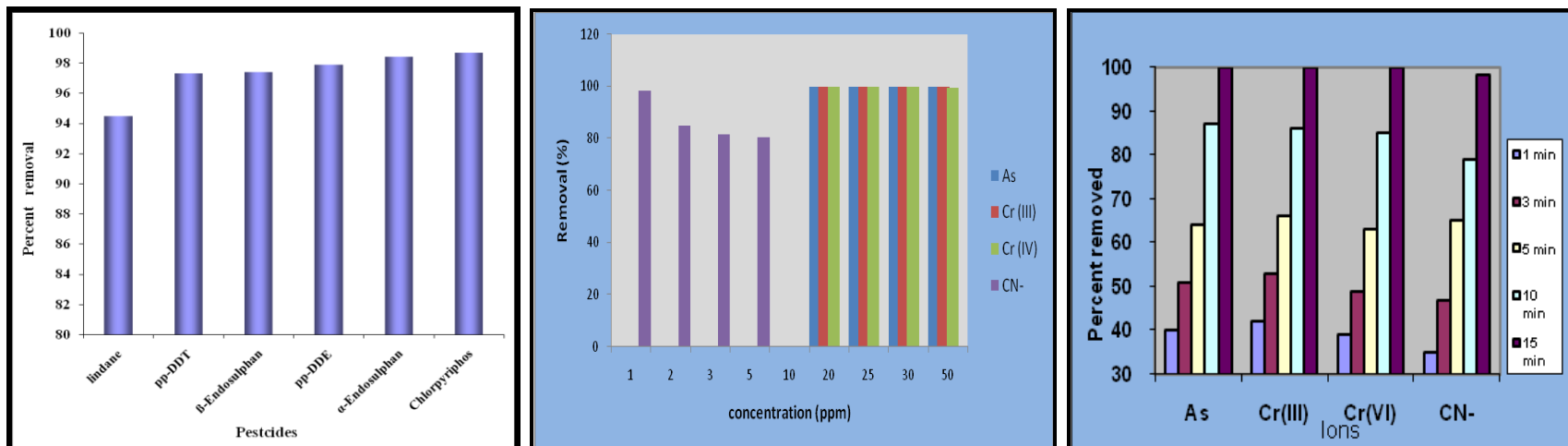




## Name of the Technology: A process for removal of Arsenic, chromium, cyanide and pesticides for improving water quality



**Figure: Percent removal of pesticides, Arsenic, chromium cyanide and effect of time on removal**

**Summary:** Presence of arsenic, chromium, cyanide, pesticides in drinking water has become the issue of global concern. Long-term exposure to even low concentrations of such contaminants in the drinking water may cause skin, lung or prostate cancer and cardiovascular, pulmonary, immunological and neurological disorder. At present there is no effective medicine available which can treat disease causes by these contaminants. World Health Organization (WHO) & Environment Protection Agency (EPA) has established a level of 10  $\mu\text{g/L}$  arsenic, 50 $\mu\text{g/L}$  of chromium, 100  $\mu\text{g/L}$  of cyanide and 0.5  $\mu\text{g/L}$  of total pesticides in drinking water from January 2006. But in several countries worldwide the concentration in the drinking water can be as high as 500  $\mu\text{g/L}$  or more. The reduction of these species from such high concentrations and made it potable as per WHO prescribe limit is a very challenging task. The present invention provides low cost and highly effective method for the removal of all these contaminants from water using zinc peroxide nanoparticles (20 $\pm$ 5nm) capped with glycerol/PVP/TEA upto the permissible range of drinking water.

**Applications:** water purification contaminated by arsenic, chromium, cyanide and pesticides

**Advantages:** Low cost, highly effective, environment friendly



**Choose the Readiness level of the Technology:**

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

**Related Patents for arsenic, chromium and pesticides:** IN 0042NF2013 23/07/2013), FP05990/DKT: 8,715,612 (USA); FP04773/PC: 2011/31-10-2012 (South Africa); FP04774/PC: 2012 (Bangladesh); FP04774/PC: awaiting (India)

**Country:** India, Bangladesh, South Africa

**Publication Date:** 2013, **Grant Date:** 2012-13, **Year of Introduction:** 2006-2009

**Broad Area/Category:** Nanomaterial

**User Industries:** Water purification industries