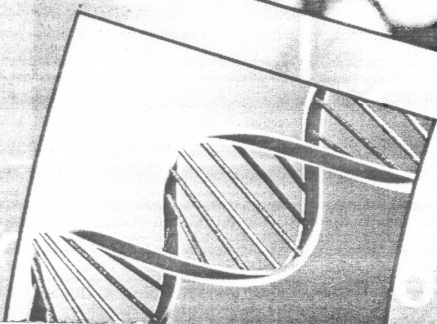
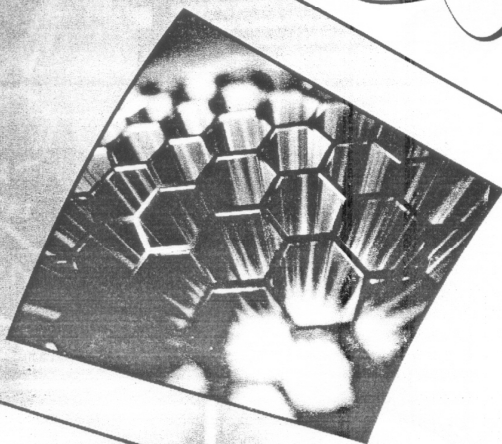
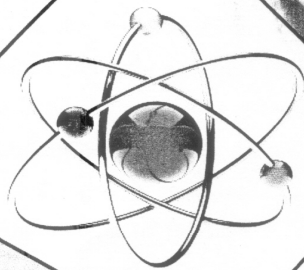




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**WORLD SCIENCE CONGRESS**

**(IL-M3) Use of chemical fertilizers in paddy farming with reference to kidney disease of unknown etiology: a review based on North Central Province of Sri Lanka**

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Chronic Kidney Disease (CKD) has become a serious health issue in the North Central Province (NCP) of Sri Lanka where agriculture is the major livelihood of the community. However, the specific feature of CKD discovered in the NCP is that its etiology does not include traditional risk factors. Hence, this new form of the disease is named as Chronic Kidney Disease of Unknown Etiology (CKDu). A study conducted by World Health Organization revealed that nearly 15% of people in the NCP within age group 15 -70 years are affected by CKDu. The total affected number is approximately 100,000. Some researchers argue that Chronic Kidney Disease has multi-factorial origin. One strong argument is continuous exposure to high ionicity in drinking water is a possible causative factor to weaken the kidney via a protein denaturing mechanism. High cadmium (Cd) and arsenic (As) levels in drinking water, fish and edible aquatic rhizomes in the endemic area have led to another hypothesis that Cd and As are the possible reasons for CKDu. Studies revealed that chemical fertilizers contribute immensely to elevate Cd, As levels and ionicity of water. This paper discusses the effect of chemical fertilizers use in paddy farming to elevate above causative factors of CKDu in the endemic area.

The NCP extends over 10,500km<sup>2</sup> in the dry zone of Sri Lanka where majority is involved in paddy farming. Government of Sri Lanka provides a subsidy for chemical fertilizers especially for paddy farming and hence over application of fertilizer is common in the region. Some analysis indicated that, Triple Super Phosphate (TSP), the principal source of P in paddy farming contain mean As and Cd levels of 31mg/kg and 2 mg/kg respectively. However, these results have been challenged by some other studies conducted in the same area. Government has taken some initiatives to reduce the amount of fertilizer distribution under subsidy scheme but soil test based fertilizer application would be the most appropriate remedial measure to overcome this problem.