

# REVIEW ARTICLE

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## CHRONIC KIDNEY DISEASE PREVALENT IN SMALL VILLAGES OF NORTH COASTAL, ANDHRA PRADESH, INDIA, UDDANAM NEPHROPATHY

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**ABSTRACT:** There are hamlets in and around Uddanam, Gunupalli, Kaviti of Srikakulam District, a North Coastal Andhra Pradesh region with high prevalence of CKD presenting clinically or sub clinically ultimately leading to high mortality and morbidity with RRT and other types of conservative management, we were detected some facts during our survey in these villages. The many of them who are living in that belt eat Dry salted fish, less water intake, hardworking people, these people approach quacks, using illicit drugs etc.

**KEYWORDS:** Nephropathy, Uddanam, Chemical, Balkans, Salvador, CKD, CIN, GHP, GMP (Good hygienic and Good manufacturing Process), HFB (Histamine forming Bacteria)

**INTRODUCTION:** Traditionally processed fish products (TFPs) are reported to carry high potential risk for human health for halophilic pathogenic bacteria, histamine and Parasites. Seafood health hazards have been outlined in several guidelines in the literature (FDA, 2001; Huss et al., 2003)<sup>1</sup> and can be classified as

- i. Biological hazards (biogenic amines - in some literature is classified under chemical hazards or biotoxins, parasites, pathogenic bacteria, viruses, biotoxins and allergens),
- ii. Chemical hazards (chlorophenicol and other antibiotic residues for farmed fish, fish originated from contaminated waters such as heavy metals, dioxins, chemical contaminants originated from processing areas, chemicals formed by fish processing such as nitrosamines and polycyclic aromatic hydrocarbons (PAH)), and
- iii. Physical hazards such as bones, plastic, glass and metals. TFPs usually carry all these health risks although some of them are specific to other seafoods such as shellfish (e.g., paralytic shellfish poisoning).

There are certain types of hazards like histamine, parasites and some pathogenic bacteria that are not easy to control at incoming material stage or during GHP and GMP applications. Therefore, the preventive measures and careful monitoring have to be done starting from incoming material stage until consumption.

**Formation of Biogenic Amines<sup>2</sup> and Involved Products:** Biogenic amines (BAs) are mainly formed in foods by microbial decarboxylation of amino acids and transamination of aldehyde and ketones. Certain biogenic amines such as histamine, cadaverine, putrescine and tyramine are of importance due to the risk of food intoxication and also they serve as chemical indicators of fish spoilage (Lehane and Olley, 2000; Kim et al., 2009).<sup>3</sup> Histamine is one of the main concerns in

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fisheries products formed by microbial decarboxylation of histidine as a result of time/temperature abuse in certain fish species. Histamine poisoning is often referred to as 'scombrototoxin poisoning' because of the frequent association of the illness with the consumption of spoiled scombroid fish such as tuna, bonito and mackerel.<sup>4</sup> However, non-scombroid fish such as herring, anchovies and mahi-mahi have also been implicated in outbreaks.

Shalaby (1996)<sup>2</sup> suggested the following guideline levels for histamine content of fish as regards to health hazard as;

- (i) <5 mg/100 g (safe for consumption),
- (ii) 5-20 mg/100 g (possibly toxic),
- (iii) 20-100 mg/100 g (probably toxic),
- (iv) >100 mg/100 g (toxic and unsafe for human consumption).

**The risk of Histamine Poisoning for Traditional Fish Products:** Some of the HFB are reported to be halotolerant (salt-tolerant) or halophilic (salt-loving). This causes some salted and smoked fish products produced from histamine forming species to continue to be suspected for histamine development. Furthermore, a number of HFB are facultative anaerobes that can grow in reduced oxygen environments. The investigations also proved that such bacteria can still be isolated from salted fish products that contain high salt level and long storage time (Köse et al., 2007a).

Moreover, recent findings indicated that histamine food poisoning can also be caused by psychrotolerant bacteria (*Morganella psychrotolerans* and *Photobacterium phosphoreum*) due to their ability of producing toxic concentrations of histamine at temperatures as low as 2°C (Emborg et al., 2005).<sup>5</sup> Dalgaard et al. (2008)<sup>6</sup> pointed out that both bacteria can produce histamine in toxic levels at 0-5°C.

1. Therefore, histamine formation during extended storage of fish at low temperature must not be disregarded.
  - a. Both the enzyme and the bacteria can be inactivated by cooking.
2. "Nephropathy of Salvadoran agricultural communities" El Salvador, end-stage renal disease is the leading cause of hospital deaths in adults, the second cause of death in men and the fifth leading cause of death in adults of both sexes in the general population. (Instituto Nacional de Salud - Ministerio de de El Salvador. Salud).<sup>7</sup>
3. Balkans Nephropathy; It is highly prevalent in SE. European countries (Balkan countries)<sup>8</sup>

**CONCLUSION:** All the factors we found during our visit to those hamlets and interact with people and observation of the surroundings would suggest, thorough evaluation of the TFP microbiologically, Parasitic, Bacteriological, and chemical analysis and quantity, quality testing of the toxins like, Histamine and teach the people to learn the GHP and GMP of the fish products, people must be educated regarding usage of illicit drugs given by quacks it's one of the causes of CKD. If the dry salted fish are the prime cause for this type of Nephropathy and CKD, we have to screen all the villages in coastal areas where the people eat dry salted sea fish. It may need to study the other aspects like water, food habits etc.

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