1. INTRODUCTION
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The marine fish resources of India are vast. With Arabian sea on the west, Bay of Bengal on the east, both merging into the Indian ocean at the southern tip of Kanyakumari, Indian coastline stretches for 8,129 Kms. Over the years the seafood industry in India has recorded a phenomenal growth and most of the expansion was accounted for by exports. India exported 424470 metric tonnes of sea foods worth 59570.5 million rupees in 2001-2002. Although there is a slight decline in the exports of seafood compared to 2000-2001, the trend of the decade shows it’s increasing both in terms of quantity and value. Frozen shrimp is the largest single item exported from India.

Although a tremendous improvement in post harvest handling and operations has taken place in the seafood-processing sector in India, canning is perhaps the only area where there was a decline. There is a need for rejuvenating the Indian seafood canning industry when viewed from the standpoint of the growth of global fish canning industry. There is also an ever-increasing appreciation for canned fish products in the domestic front (Nair and Girija, 1996).

The existing canneries in India are operating only at about 5 % of their installed capacity. The indigenous demand for canned products is constantly on the rise. Defence requirements of canned fish alone accounts for about 450 Tonnes per annum. The demand from the Northeastern states for canned sardine and mackerel is assessed to be 500 tonnes per annum besides 300 tonnes of canned tuna. While the existing machinery and equipments are idling canned products such as sardine, mackerel and tuna are enjoying wide spread acceptance in domestic as well as overseas market. In India, the future for canned seafood appears to be very bright in the super market culture where more people are interested in packaged and convenience foods.
History of development of canning as an important method of food preservation dates back to the late 1790's. Following the announcement by the French Government of a prize of 12,000 Francs and fame to any person inventing a useful method of food preservation, Nicholas Appert, a French confectioner developed a method of food preservation called ‘appertization’ and won the prize and fame (Benefactor of Humanity) in 1809. Appert started his studies on preservation of foods in 1795. During his studies he found out that foods remained safe for longer periods when heated in sealed containers. But he could not give a logical explanation to the process. However, it was believed that in some “magical and mysterious way” air combined with foodstuffs in a sealed container thus preventing its spoilage.

Since the introduction of appertization as a method of food preservation, the canning industry has witnessed a gradual and steady development. We can see that these developments have taken place by way of developing newer containers and their manufacturing technologies, development of new heat processing equipments and basic scientific work leading to the understanding of spoilage of food by microorganisms, their heat resistance characteristics and heat penetration into canned food. Tremendous achievements and scientific knowledge has generated through the last two centuries regarding the different aspects of canning. Several Scientists have contributed to the status quo of the thermal process technology. In 1920, Bigelow's presented the first scientifically based graphical method for calculating minimum process conditions for sterilization. In 1923, Ball developed a mathematical model for determination of sterilization process. This was followed by a nomographic method for process determination by Ohlson in 1939. In 1957, Ball and Olson compiled the research findings of others including their own and published a book on heat sterilization. Since then, the technology continues to evolve and grow. Today, focus of the current developments has been geared towards increased efficiency in energy
utilization and production, easy handling, more attractive packaging and better sensory quality (Durance, 1997). At present, successful thermal sterilization process necessitates balancing the beneficial and destructive influence of heat on the desirable characteristics of food.

Thermal processing i.e. the application of heat energy for preservation of foods is the technique mainly responsible for the growth of food processing industry world over. It generally refers to a process during which a food product is subjected to high temperatures with the objective of inactivating undesirable microorganisms or enzymes.

Depending on the severity of the heat treatment, and the purpose of process, different thermal process regimes such as pasteurization and sterilization can be described (Lund, 1971). Pasteurization involves application of mild heat treatment with the purpose of inactivating enzymes and destroying spoilage vegetative microorganisms (Bacteria, yeasts and moulds) present in low acid foods (pH < 4.6). Alternatively, if the pH of the foods were high (pH >4.6), the main concern would be the destruction of the pathogenic microorganisms of public health risk. Such processes are referred to as commercial sterilization.

Tinplate cans are traditional containers for canned fish. The entire production of canned fish in India is at present in tin plate containers. However, almost the entire quantity of the cans used for processing fish is made of imported tin plate. High cost of the imported tin plate was one of the reasons for the collapse of the canned fish exports from India. India has one of the largest deposits of bauxite and can naturally become a world leader in aluminium production (Kothari, 1986, Srivatsa, 1993). In India out of annual production of 3.5 lakh tonnes only about 10% is consumed by the packaging industry. The per capita consumption of aluminium in India is 0.41 Kg as against 27.5 Kg in USA and 16.2 Kg in Europe.
Aluminium container offers tremendous opportunities to take care of the packaging needs of the food-based industries like canned fish products. Besides the natural advantages like lightweight and corrosion resistance, the most important merit of aluminium is its recyclability. The present study was undertaken with the following objectives in mind.

- To find an alternative container to tin cans for fish canning.
- To reduce the cost of production of canned fish by using indigenously manufactured aluminium cans.
- To study the suitability of aluminium cans for heat processing of fish in various media.
- To standardize the heat penetration characteristics (Fo value and cook value) and process time of various canned fish products in aluminium cans.
- To find out the shelf life of various canned fish products processed in aluminium cans.