PREFACE

The herald of the 21st century has India grappled with issues concerning the environment. The environment, defined as all the biotic and abiotic factors surrounding a given population, has a significant influence on the health and well-being of a population. Modern agricultural practices, industrial and technological progress have been accompanied by a growing negative impact on the environment in terms of its pollution and degradation (Bussolaro et al., 2012). Increase in agricultural productivity to meet the demand of an increasing population, is possible only when modern methods of agriculture are practised. Hence, it has become imperative to increase crop and stop grain losses by using pesticides. However, the majority of pesticides is specifically targeting not only the pests but also affect non-target plants and animals. Many pesticides are not easily degradable. They persist in soil, leach to groundwater and surface water and contaminate wide environment (Soto et al., 2011). Depending on their chemical properties they can enter the organism, bioaccumulate in food chains and consequently influence human health also (Zhou et al., 2012).

The effect of pesticides on human health depends on the toxicity of the chemical persistence and the length of the magnitude of exposure (Lorenz, 2009). Many pesticides are endocrine disruptors. Chemicals that mimic estrogen are of more concern because exposure over time to natural estrogen or synthetic chemicals that act like estrogen increases incidences linked to breast cancer, whether they are carcinogens or endocrine risk of breast cancer (Wissem et al., 2011). Earlier reports suggest that there was a cumulative relation between the incidences of breast cancer and the increased industrialization and modern agricultural practices (Robert et al., 2011; Gracia et al., 2011).
Among the various classes of pesticides used in agriculture, organochlorine pesticides, such as DDT and organophosphates such as Monocrotophos may increase the risk of breast cancer (Dewailly et al., (1999); Shen (2007). Some pesticides are breast carcinogens and cause direct damage to breast cell DNA or change the cell’s ability to respond to internal or external challenges. Ten of the 216 animal mammary carcinogens listed by Silent Spring Institute in 2007 are pesticides.

Hence in the present study, an attempt has been made to explore the possible relationship of a number of risk factors both known and suspected with special emphasis on pesticides with breast cancer risk in the study region of Guntur district where pesticide usage is more on commercial crops like cotton, chillies, sugar cane etc.

The present study was presented in six chapters.

Chapter I:

This chapter deals with the general introduction of the complete work, which provides a fundamental platform justifying the importance and need to carry out such a kind of work. In a nutshell, in the present study, an attempt was made to understand the negative impact of certain classes of pollutants (pesticides) manufactured and released into the environment by humans and as such, they are of particular relevance to human health with special focus on a grim facet of breast cancer, a disease which is deeply rooted in environmental practices and lifestyle habits.

Chapter II:

The second chapter deals with the review of past research which helps in identifying the conceptual methodological issues relevant to the present study. This would enable the researcher to collect information and subject them to sound
reasoning and meaningful interpretation. A brief review of the earlier research work related to the present study is presented in this chapter.

Chapter III:

This chapter deals with the description of the study area, the sampling procedure with the nature and sources of data, analytical tools and techniques employed for the present study “Breast Cancer Incidence in Guntur District and its Environs and The Possible Causative Factors and In-Vivo Molecular Changes”

Chapter IV

This chapter deals with the results of the study with known and suspected risk factors of breast cancer analyzed statistically. Tabulation of each parameter of the collected data and the selected individuals (300 subjects). Each selected parameter data like, concentrations of both organochlorine and organophosphate pesticides, steroid hormone levels, DNA damage and Single Nucleotide Polymorphism and animal model studies were tabulated and the tabulated data was drawn in the form of figures to illustrate the results more meaningful.

Chapter V

The results of investigation presented in the previous chapter were discussed in this chapter. The main focus here was to throw light on some of the causes responsible for the major results observed in the investigation.

Chapter VI

The results obtained, in all, were summarized and concluded in this chapter.
In all earnestness, the author tried her level best to make use of the available facilities to give a concise effort to study the problem undertaken. Effects of pesticides on breast cancer incidence in the study population were an important part of the study and although some results have already been published, none relate specifically to pesticides and breast cancer. The role of pesticides played in the etiology of breast cancer remains indefinite and the search for irrefutable answers must continue. The author humbly accepts that the present investigation by no means is an exhaustive report, however it has initiated the work to contribute the basic and the useful information with respect to the correlation of breast cancer and pesticide exposure.