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Farming system has undergone drastic changes from time to time with the introduction of new technologies. Food production is directly linked with nutrient supply. Production of more and more food for increasing population, increase dependency on chemical fertilizers as a result heavy doses of fertilizers and other agrochemicals are being applied. These practices though increased yield, but made the plant system more vulnerable to various stresses like infestation to pests and drought. The effects of chemical fertilizers on the soil physical properties are complex and variable. The major nutrients applied routinely as fertilizer to agricultural soils are the NPK. Their application affects soil physical properties by influencing process like flocculation/dispersion, and thus dictated by nature, quantity, ratios and mode of application etc. Fertilizers, rightly applied in balanced amounts, improve crop yields, thereby increasing organic matter return to soil. The soil organic carbon build up in returns helps in the improvement of soil physical properties and productivity (Sharma and Bhusan, 2003). The last three decades, however, observed decline in growth of food production in spite of use of HYVs and increased amount of chemical fertilizers. Besides this it has a deleterious effect on the environment. Because of the effect of synthetic chemicals in association with the degradation of environmental quality, some ecologists and environmentalists have promoted the other extreme, i.e. to demand agricultural commodities which are produced in accordance to a specialized system that is totally free from any form of synthetic chemical influences. This has led to the emergence of a movement towards specified farming concept based on the traditional farming philosophy which popularly is known as ‘organic farming’ with slogans like ‘back to nature’. The concept of organic farming is growing at a faster rate among the masses of the world population especially in the developed countries where people are more health conscious. Realizing the toxic effects of chemical residues in the food chain, the demand for food items grown organically has become the need of the day. Organic farming has developed from the philosophical views of Rudolf Steiner. Today more than 130 countries are producing certified organic foods and beverages out of which 50% are from developing countries (Willer and Yussefi, 2000).

India has recently launched the National Programme on Organic Production, which provides an institutional mechanism for the implementation of National Standards for Organic
Products through a National Accreditation policy and programme. This accreditation system includes certification of organic farms, products and processes as per the National Standards of Organic Products (NSOP). A certification – “India Organic”, communicating the authenticity and the origin of the product, will be granted on the basis of compliance with the NSOP. This certification mark will be used only by such exporters, manufacturers and processors whose produce is duly certified by the accredited, inspection and certification agencies.

The concept of organic farming is gaining ground with Indian tea planters too. India, the largest producer and consumer of tea in the world, is well known for availability of a wide variety of teas. India produced 840 million kg of tea during 2000 (Ghosh, 2002). With the onset of liberalization, the Indian tea industry is on the threshold of a new global competition and therefore, there is an urgent need to focus on retaining and improving the competitive advantages. The same can be achieved increasing productivity, improving quality with value addition, enhancing the marketing ability and curtailing the cost of production. Since the introduction of organic tea in late 1980’s, the consumption has shown an increase of 10% in the global market; whereas it has shown 25% increase in European market over the past 10 years (Muraleedharan, 2001). An increasing trend in consumption and strong demand for organically grown teas, command a premium of 30 – 40 % over conventionally-produced tea. Hence, organic tea production is more remunerative than the conventional tea production even after taking into consideration the lower productivity and higher cost of production (Anonymous, 2001).

The tea industry has shown a 20 folds growth in the production of organic tea from 1990 - 2000. The production of organic tea was 1,50,000 kg in 1990 and it has increased to 21,50,000 kg in 2000 (Ghosh, 2002). In India, the cultivation of organic tea was started in Darjeeling during the year 1986 and has gradually spread to the tea growing areas of Assam and South India. Since 1986 Makaibari Tea Estate of Darjeeling has been cultivating organic tea according to the International Federation of Organic Agricultural Movement (IFOAM, 1994).

Earthworms are increasingly recognized as indicators of agro-ecosystem health and as important tools for ensuring soil improvement and efficient nutrient cycling. They can play a variety of important roles in agro-ecosystems. Their feeding and burrowing activities incorporate organic residues and amendments into the soil, enhancing decomposition, humus formation, nutrient cycling, and soil structural development. Composting by using earthworms is called vermicomposting and the product is Vermicompost. The art of rearing
the earthworms is Vermiculture. Along with earthworms, bacteria, fungi and actinomycetes also participate in the biological process of Vermicomposting. The product vermicompost means the castings of the worms. Different spp. of earth worms are used for this purpose. Red worms (*Eisenia foetida*) and African night crawler (*Eudrilus eugenics*) is the main. There are two major advantages of vermicompost. First, it provides a method of quick disposal of garbage without using external energy in an Eco-friendly way. Second big advantage is the supply of nutrients, most suitable for all crops, in addition to improving physical and microbial environment of the soil. The nutrient composition of vermicompost depends upon the type of organic residue fed to the worms.

Compost and vermicompost are commonly used organic manures in organic farming. Composting is the biological process of decomposing of organic constituent of bio-waste material under controlled conditions (Golueke, 1972). During composting process, organic residue of plant and animal origin are converted into organic manure that is rich in plant nutrients and can be absorbed directly by plants. Rate of decomposition and mineralization of organic residue vary among species having different plant chemistry (Palm and Sanchez, 1991).

The sources of organic matter in tea fields are shade trees litter/lopping, tea pruning and weed flora. The annual average addition of organic matter by these sources varies with the elevation and length of pruning cycle. At mid elevation it is as high as 23 t/ha and at high elevation of 2500 m, reduces to 14 t/ha (Ranganathan *et al.*, 1980). This available organic matter can be used for compost/vermicompost preparation at the farm itself.

Agriculture continues to be backbone of Indian economy. Since independence, the emphasis in Indian agriculture has been more on exploitation of natural recourses (land and water) but very less on restoring, reclaiming and enhancing their productivity and sustainability. Hence it is essential to make efforts to improve nutrient and water management strategies which will ultimately improve agricultural system. For making the system sustainable, it is mandatory that today’s economic development should not be at the expense of tomorrow’s development prospects. Hence taking into consideration the threat of the nutritional security of the nation in the future, the use of improved technological inputs and their management should neither be at the cost of economics nor soil quality. The solution lies in bringing about a change to a more ecologically sound, sustainable and self generating agricultural system i.e. ushering an era of organic farming.
It is well known that application of organic manure and biological resources is a fundamental need for successful farming for long-term perspective of attaining sustained productivity of land. But it is not practicable for our country, having a large population, to have pure organic farming enmasses. This is especially because neither it could be practicable in view of the stringent requirements and parameters of pure organic farming nor we could probably afford to take risk of reducing overall food grain production drastically. Therefore, abandoned and neglected land should be used for pure organic farming for raising high value crops such as spices, dry fruits like cashew nut, almonds, apple, orange, cotton, grapes oilseeds, pulses, coffee, banana and tea etc.

Himachal literally means “Land of Snowy Mountains” situated in the North-West lap of Himalayas. Himachal Pradesh is bound between 30° 22' to 33° 12' North latitude and 75° 47' to 79° 41' East longitude (Balokhra, 1998). The entire territory of Himachal Pradesh is mountainous with altitude varying from 350 to 7000 meters above the mean sea level. As per the 2001 census, the total geographical area of HP is 55,67,300 ha out of which cultivated land is 9,99,676 ha which is 17.96 per cent of the total geographic area. Among the plantation crops, tea is an important cash crop of the Mid-mountain zone (Kangra, Mandi and part of Chamba district). Tea is planted over an area of 2300 hectares with the total production of 15 lakh kg made tea (Anonymous, 2003). About 7700 ha of additional area in Chamba district has been identified as the non-traditional area suitable for tea cultivation. On the basis of utilization of tea area, nearly 53 per cent of planted area under tea is neglected and 27 per cent of land is in abandoned state (Anonymous, 1997). About 80 per cent of tea area in Himachal Pradesh is free from the use of chemical fertilizer/pesticides. Moreover, new identified area is either uncultivated or virgin land so there is possibility to cover these areas under organic tea plantation.

Keeping in view the ecosystem and health hazards caused due to the intensive use of chemicals (fertilizer/pesticide), availability of plenty indigenous resources for preparing compost and vermicompost for organic manuring, and remunerative prices of organic products, the present study is proposed to be under taken with the following objectives:

**OBJECTIVES**

- To quantify the bio-resources and residue available in tea plantation for composting and vermicomposting for organic farming.
• To evaluate the nutrient status of compost and vermicompost from different resources.

• To study the response of young tea plantation in term of growth, development and quality as influenced by different bio-resources (compost and vermicompost) as organic manure.

• To study the uptake of nutrients (N, P and K) in young tea plants following organic manure application from different resources.

• To monitor changes in physico-chemical properties of soil following organic manure application from different resources.

• To generate the information on judicious dose of organic manure for optimum growth and quality production in young tea plantation from different bio-resources.