



CHARACTERISTICS OF FLY ASH OF THERMAL POWER PLANT AND ITS POSSIBLE UTILIZATION IN AGRICULTURE AND FORESTRY

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ABSTRACT: Fly ash is the waste product left after the burning of coal in Thermal Power Plant. It contains essential macro and micro nutrients and also a high concentration of a large number of toxic heavy metals. Due to heavy dispersal, it occupies a large area of land in the vicinity of the power plant and the heavy metals present in the ash are highly toxic to plants, animals and human beings. The potential of the ash causes ground water pollution significantly. However, fly ash having a considerable amount of plant nutrients may be helpful in improving crop growth even in the low fertility soils. Although the use of fly ash in agricultural production and forestry is limited some studies in India and abroad have been documented regarding its utilization properly in forestry and agriculture. The present review covers some potential benefits and harmful effects of the ash in soil and the environment as a whole and its possible utilization in crop production.

Keywords: Coal ash, crop production, environmental impact, forest species, soil health

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INTRODUCTION

Electricity is the key input to achieve industrial development and no nation can progress without adequate supply of electric power. In India too, power generation has increased substantially since independence. Although efforts are being made to develop alternate source of energy (wind power, solar energy, geothermal energy, hydro-electricity, nuclear energy, tidal energy etc.), the relatively slower pace of development makes thermal power generation is the major source of energy in the country. The coal based thermal energy has assumed greater significance and

importance in view of enormous coal reserve in India. Three kinds of thermal power stations (central, state and private) are widely distributed all over India with a total installed capacity of 221802.59 MW as on June 2021 (CEA, 2021). The total installed power generation capacity in India as on June 2021 is 384115.94 MW of which the thermal power plants have the installed capacity of 234058.22 MW (Table 1). However, coal based generation is 202364.50 MW. About 71 per cent of electricity consumed in India is generated by thermal power (CEA, 2021).

Table 1. Installed power generation (MW) in India as on 30th June 2021

Sector	Coal	Lignite	Gas	Diesel	Total
Central	62,400.00	3140.00	7237.91	0.00	72,777.91
State	65,791.00	1290.00	7087.35	235.01	74,404.86
Private	74,173.00	1830.00	10,598.74	273.70	86,875.45
All India	202,364.00	6266.00	24,924.01	509.71	234058.22
Percentage	52.68	1.63	4.49	0.13	60.93