

PLANT FIBER FOR WATER RETENTION AT ARID AND SEMI-ARID SOILS OF ALGERIA

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ABSTRACT:

Soil and water conservation is essential for sustaining food production and for preserving the environment in arid and semi arid lands (ASALs) where conditions for agriculture and other land use systems are often harsh and unpredictable.

The ASALs of Algeria are an important source of a variety of non wood forest products like *Stipa tenacissima* L plant.

This research was conducted to determine the effects of different low concentration (<1%) of Polyacrylamide; *Stipa tenacissima* L fiber and it's mixtures with the polymer at water retention in arid and semi arid soil.

All samples are characterized by viscosity, infrared spectroscopy, X-ray Diffractometry, thermal analysis

TG; DSC and scanning electron micrographs (SEM).

The results showed that polymer blend (5 mg / l Polyacrylamide and 0.5g /l fiber *Stipa tenacissima*) in soil could improve better soil physical proprieties and augment water retention at arid soils compared with application of any other blend at the same concentration. This work can help to improve the productivity of arid and semi arid soils by using low concentration of plant fibres and polymers from synthetic plastics compounds or wastes plastic industry to augment water holding capacity and also to improve physical properties of soils by binding soils particles together and reducing the losses of water by evaporation and deep percoloration, also to make valuable products of plastic industry and renewable organic fibers to protect environment.

KEY WORDS: Natural fiber, plant fiber, Arid and semi arid regions, polymer, *Stipa tenacissima*