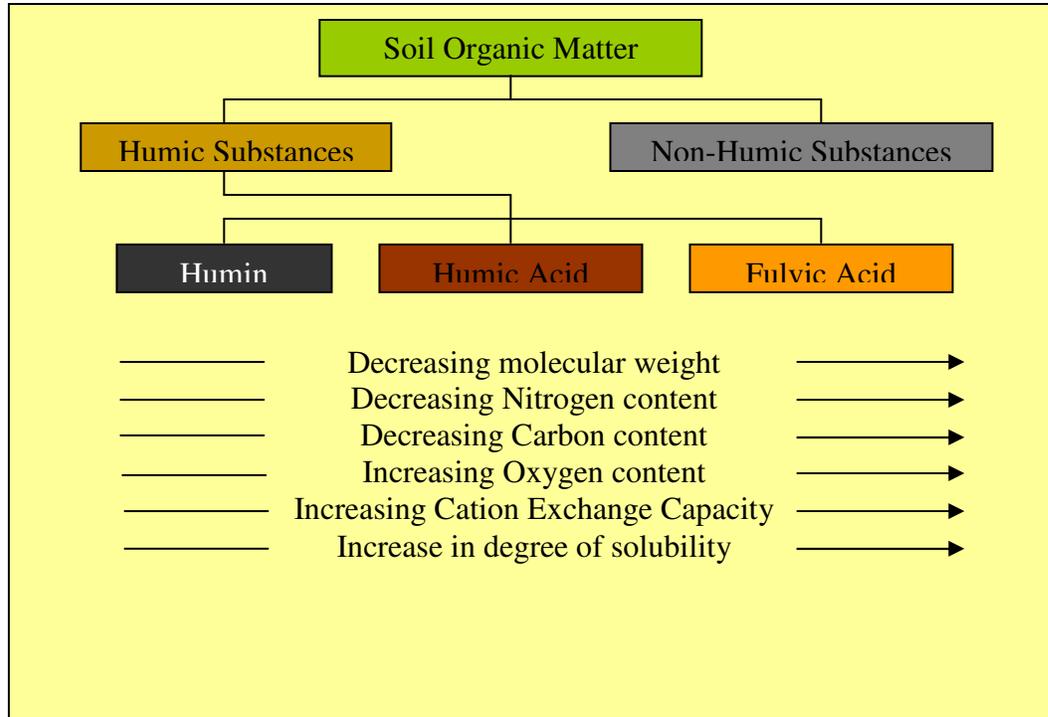


## Soil Organic Matter & Humus – What’s The Difference?

SOM and humus are distinctly different. SOM includes all fractions of organic material in its multitude of stages of degradation, whereas humus is only the humic substances present at the end of the biological degradation of organic matter.

SOM represents the organic constituents in the soil, including undecayed plant and animal tissues, their partial decomposition products, and the soil biomass. SOM therefore includes non-humic components such as sugars and fats etc.



## The Practical Value of Humic Substances

As organic matter breaks down in soil, humic acids (Humic acid & Fulvic acid) are formed. To some extent they are the biological heart of natural organic matter. They are the main fraction, the biological centre, of natural humic matter.

Humic acids assist in the physical modification of soil, build capacity to hold plant available nutrients and assist in biological stimulation and microbial activity.

Humic acids are natural chelators of soil trace elements and nutrients. They assist or promote their uptake by plants as they convert nutrients to plant available forms. Without this, elements such as iron, copper, zinc, manganese and other trace elements may form insoluble hydroxides. The presence of Humic acids maintains their plant availability.

Humic acids stimulate and promote plant development, resulting in higher yields. Humic acids improve the structure of soil and increase water retention, seed germination, root growth and quality of yields. For soils to remain fertile, humus must either be replaced or added.

When Humic acids enter plants at early stages of development, they result in increased cell division, root development and eventually dry matter, they act as respiratory catalysts, act as natural chelators of metal ions under alkaline conditions, convert nutrients into forms available to plants, protect plants from chlorosis and increase the permeability of plant membranes.

## Basic Properties of Humic Substances

**Humic Acids** – These are the major humic component of soil and although water insoluble under very acidic conditions ( $\text{pH} < 2$ ), are readily soluble at higher pH's. They are dark brown to black in colour.

**Fulvic Acids** – Fulvic acids are water soluble in all pH conditions, and are yellow to yellow-brown in colour.

**Humin** - the fraction of humic substances that is not soluble in water at any pH value and in alkali. Humins are black in colour.