

Microorganisms... The Name Game

Cosmetic chemists spend a considerable amount of their time and resources dealing with issues that involve microorganisms. Generally speaking, we work diligently to devise rigorous preservative systems to control their growth and prevent contamination of the products that we develop. While we are quite accustomed with the types of organisms that cause many of our sleepless nights, you might not be as familiar with how these organisms actually received their particular names.

A universal system for naming and classifying living organisms was initially developed in the 18th century by Carl Linnaeus, a Swedish botanist. Linnaeus' purpose was to bring order out of chaos in the living world. He developed a system of classification for all known plants, animals and minerals using Latin and Greek names and called it *Systema Naturae*, literally the system of nature that has lasted to the present day. Linnaeus' name for the genus, coupled with a single Latinized name assigned to the species, gave us our own species, *Homo (man) sapiens (wise)* and his faithful companion, *Canis (dog) familiaris (domesticated)*...and so it goes.

So armed with this basic information let's look at those organisms that comprise the basis of the USP 51, the Antimicrobial Effectiveness Test with which all cosmetic chemists are familiar. The organisms used in this test to determine whether a personal care product is properly preserved are:

Escherichia coli – *Escherichia* (named after Theodor Escherich, its discoverer) and *coli* (of the colon)
Pseudomonas aeruginosa – *Pseudomonas* (false unit or germ) and *aeruginosa* (copper rust, the colonies blue- green pigment)
Staphylococcus aureus - *Staphylococcus* (cluster of grapes) and *aureus* (golden color of colonies)
Candida albicans – *Candida* (white robes worn by Roman Senators) and *albicans* (white coloration)
Aspergillus niger – *Aspergillum* (resembling a holy water sprinkler) and *niger* (black coloration)

Other microorganism names of interest:

Streptococcus viridans (chains of spheres, green in colony color),
Proteus vulgaris (first and common)
Nessieria (Albert Neisser)
Listeria (Joseph Lister)
Legionella longbeachiae (American Legion, Long Beach, California) – one of local flavor but most infections are found in Australia
Salmonella – Don't go there! It has nothing to do with salmon, but takes its name from the US veterinary surgeon Daniel E Salmon who first identified the bacteria strain.