

Abstract

We explain the typical shape and appearance of bacterial monocolonies grown on rich medias as an active effort of cooperating individuals. This puts each colony into the light of biological aesthetics and shows it as a unique piece of art. We understand the appearance of colonies as a manifestation of the most general dimension of Life, enabled by domestication and relaxing of the stress of natural selection. That is, what allows the colonies to experiment in their morfogeny and to resign on the functional morfogenesis.

When kept in convenient conditions, aerobic bacteria tend to build complex colonies with strain specific patterns. The colonies are suprisingly well organised considering that they are built by more than 10 000 times smaller primitive unicellular organisms. In microbiology the colour and shape pattern of the colonies used to be called „the secondary metabolism“. Nowadays we consider them to be an effect of the efficient microbial communication and we know, that bacteria have utilized for communication hundreds of different biochemical messages. However, we still do not understand the relevance or the aim of the formation of the colonies and their pattern. Moreover, we are also able to detect a complicated intercolonial behaviour including in some cases cooperation, agressiveness or restraint. The individuality of the colony should be therefore considered dependent on other colonies nearby, besides the effect of the culture media. The behaviour of the colony clearly shows an affiliation of the simple unicellular organism to the whole colony.

We do not need to suggest any environmental function or adressness (in accordance with A. Portmann, 1960) of the phenomena observed. It is possible to see it as an expression illustrating the autonomy and authenticity of organisms as tiny as the bacteria. Such an aesthetical way of view supposes the freedom of expression which can lead to an artistic ornamentalism, perfectionism, hypertelia or decadence. All these we call a *self representation of an organism*.

Bacterial social life is limited to a biofilm cooperation in nature. Despite this, they are able to build pure monocolonies. Defined laboratory conditions support the research of morphology and morphogenesis of the colonial body and show us the bacterial monocolony as an organism which creates *complex communication environment of unicellular organisms resulting in macroscopic pattern objects*. On our model organism *Serratia marcescens* we would like to demonstrate that bacteria strive to cooperate in

building a colony of a *typical shape and appearance* and if grown on rich media they take advantage of relaxing of the nutrition stress and enhance the complexity and specificity of each colony made. This shows each colony as a unique piece of art. We understand the *appearance* of colonies as a manifestation of the most general dimension of Life, enabled by domestication which also allows the colonies to experiment in their morphogeny and to partly resign on its functional aspects.