

Design of color in plants



If one does not reflect, one cannot see the miraculous characteristics of the living beings around one. So long as one does not think about how a butterfly with its membranous wings flies, how the flowers one sees have such diversity of color, how the top branches of hundreds of meters tall trees remain green, one cannot grasp the subtleties of these. Even the extraordinary artistry in a flower may not capture one's attention.

However, perfect artistry is clearly displayed in all living beings from insects to birds, from plants to sea creatures. Certainly this artistry belongs to God Who is the Creator of all living things.

Let us think about plants, fruits, vegetables, flowers, and trees. Plants, each having different color, fragrances and tastes, are evidence of the artistry in creation of God. Each plant you see around you or know from books has color and patterns that are exclusive to its kind. The reproductive process of each is different, the proportions of nectar they contain and their fragrances are all different. Let us think about roses. There are red, white, yellow, orange, pink, white edged, double-colored, even roses with wavelike color. Certainly, it would be great blindness for a man who sees all this not to feel admiration for and not to glimpse the endless might of God, Who is the Creator of all these flowers. In the Qur'an, God refers to those who fail to appreciate the evidence of the creation they see as follows:

How many Signs there are in the heavens and earth! Yet they pass them by turning away from them. Most of them do not have faith in God without associating others with Him. (Qsurah Yusuf, 105-106)

Have you ever thought about why plants are green? As is obvious, the color prevailing in the world of plants are green and shades of green. Chlorophyll is the main substance producing green. Chlorophyll, a very important substance, is a pigment contained in the chloroplasts scattered out in the cytoplasm of the plant cell. These pigments absorb light coming from the sun easily, but only reflect the color green. In addition to giving the color green to leaves, this feature also causes the fulfillment of a crucial process called "photosynthesis".



In photosynthesis, plants utilize sunlight, which consists of the combination of

different color. One of the most important properties of the color in sunlight is that their energy levels are different from one another. This assortment of color called the spectrum, which is obtained by the refraction of color in a prism for example, has red and yellow tones at one end, and blue and violet tones at the other end. Color with the highest level of energy are those color at the blue end of the spectrum.

The difference in the energy levels between color is very important for plants, because they need large amounts of energy to make photosynthesis. For this reason, during photosynthesis, plants absorb those sunrays of the highest energy levels towards the ultraviolet end of the spectrum, i.e. violet and blue, as well as the color that are more towards the infra-red (heat) end of the spectrum, i.e. red, orange and yellow. Leaves carry out all these processes through the chlorophyll pigment existing in the chloroplasts.

For a plant to photosynthesize, the energy levels of the light particles that are absorbed by the substance chlorophyll must be adequate. The process of photosynthesis begins when a plant, with the energy it receives from light particles, breaks the water molecules into oxygen and hydrogen molecules. Hydrogen reacts with carbon in the carbon dioxide gas to form the sap of the plant, which is essential for the plant to survive. In other words, the plant produces its own food. Unused oxygen, on the other hand, is released to the air. Most of the oxygen we breathe in the atmosphere is produced that way.



As a result of the process of photosynthesis in plants, they produce carbohydrates, one of the main food sources for other living things. The substances produced during photosynthesis are extremely important for plants themselves as well as for animals and humans, because plants are the main source of food of all living things on earth.

As we have seen, besides providing an aesthetic appearance, the green color of plants is also extremely crucial for the survival of both plants and other living creatures. God

makes the substance chlorophyll a cause for the nourishment of plants and the sustenance of all other living creatures.

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