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XII. *Account of a Violet Dye produced from the Leaves of Succotrine Aloes, which resists the Action of Oxygen, Acids and Alkalies. By Mr. FABBRONI. From the Annales de Chimie, Vol. XXV.*

TO increase the number of dyeing substances, and to be able to vary the tone and shades of the different known colours, is an object of no small utility. Several manufactures, as is well known, have been indebted for their reputation and credit to the possession of a particular dye.

Without speaking of the Tyrian purple, who is ignorant how much value the modern scarlet has given to the Dutch cloths and to those of the Gobelins? Who does not know that the beautiful black of Florence, which has never yet been imitated, has raised the Florentine stuffs all over Europe to a price to which that of no other country ever attained?

Scarlet and black belong to that class of colours called *noble* or *fixed*, because they are not susceptible of being stained, and because they experience no alteration either from the air or from light. The beautiful red colour also given to silk by safflower is reckoned among the noble colours, though it does not withstand the influence of these two agents, which soon destroy it or render it pale.

All other red dyes for silk, in order to be durable, must be composed, in part, of cochineal, which is a colouring substance exceedingly constant.

Archile and all the other lichens produce a very beautiful violet; but the sun alters this colour and makes it turn blue.

I am of opinion, therefore, that if means could be discovered to compose, without cochineal, colours graduated from the most delicate to the darkest violet purple, which might be proof against the action of acids and of the air, infinite advantages would thence result to the manufacturers of cloth and to the public.

It was in hopes of discovering such a colour that I directed my researches towards a substance which hitherto has not been ranked among those called colouring substances.

I was persuaded that the matter of the brilliant colours presented to us in those fruits, flowers, and plants, which have undergone a spontaneous alteration, pre-exists in the mass of the fluids that circulate in those organs, where it is dispersed or concealed ; and that to be able to turn it to advantage, nothing would be wanting but a method to separate it, and to modify it in a proper manner.

The cochineal insect, which lives on the nopal (*cactus coccinifer*), can extract with its proboscis the red juice, or juice susceptible of becoming red, of that plant ; which afterwards communicates its colour to the insect, and which, in my opinion, is the same as that exhibited to us naked in the ripe fruit of the same plant.

The beautiful scarlet colour assumed by the dead leaves of some species of strawberry blite (*blitum*) is not perhaps brought forwards but in consequence of the decomposition of the dead leaf. Would it be impossible then for art to separate this colour, and to modify it in the like manner ?

Having observed that the succulent leaves of the *aloe succotrina angustifolia*, as they dried on the plants, assumed an agreeable violet colour, I tried to separate the colouring matter, or principles of that fine colour, from the living leaves.

I found by experiments, that acids as well as alkalis speedily gave to this almost colourless juice a red colour, and formed a successive precipitation of colouring molecules which had the same colour.

Oxygen gas produced the like effect ; and it is highly pleasing to see how the juice of aloes, merely by being exposed to the air, with or without the contact of the light, successively reddens, beginning at the parts more immediately in contact, and is gradually converted into a very dark and lively violet purple.

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This juice then produces a superb transparent colour without body, highly proper for works in miniature, and which when dissolved in water may serve also, either cold or warm, for dyeing silk from the lightest to the darkest shade.

Silk, even without a mordant, strikes and becomes impregnated with this dye. It is equally attracted by sulphurized silk, though the latter is so little disposed to assume any colour whatever.

The aloe, indeed, is not a plant indigenous in our climates ; but this is an inconvenience which it has in common with almost all substances used for dyeing, and even with a great number of those which serve us as food. The juice might be procured from Socotora itself, not such as it is found in commerce inspissated by fire, but dried in the air, or prepared by an acid.

Besides, as this plant grows without any difficulty in our botanical gardens, we may hope to multiply it enough by cultivation, particularly in the southern parts of Italy, in order to extract from it the juice ourselves.

The value of this new colour may be readily discovered, when we observe that, by its property of not being altered by acids or alkalis, it possesses the uncommon quality of not being susceptible of becoming spotted.

When we consider also that the oxygen, which discolours our cloths and silks so as to render them white, is, as one may say, the principle which develops the colour of the aloe ; it ought to be inferred, that the air cannot alter a quality which it communicates itself ; and we may therefore conclude, that we have discovered in the aloe one of the most durable colours known in nature.