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Common Flowers/White Out

Bio-Hacking, Open-Sourcing and Exorcising
GM Flowers

Introduction

Suntory Ltd., the Japanese drink and biotechnology company, acquired Australian-based Florigene in the middle of the 1990's and along its research on the genetic modification of the pedal colour of carnations (*Dianthus caryophyllus* L.). Suntory and Florigene not only succeeded in creating blue coloured carnations, they also introduced them in 2005 into the general market.

The significance of this is not the bio-technical feat of creating a novel pedal colour – which was not possible through standard breeding techniques – but the fact that this blue GM carnation – “Moondust™” – constitutes the very first instance of a genetically modified plant with the function of aesthetic consumption.

Previously, GM-modified plants like soy, corn, tomato and rice were developed with the aim of serving as human food or animal feed. GM Food has sparked discussion and outrage, often justified, but often the issues are dealt with a gross simplification that distort the issues at stake and try to demonize the technologies involved. Technology, and especially Biotechnology can be considered neither *good* nor *evil*; as with all technologies it depends on the purpose for which they are deployed. By positioning the flowers as an aesthetic product – which is not intended for human consumption – Suntory manages to sidestep the ethical dimensions involved and exclude themselves from the ongoing debate about the possible negative effects of adding genetically modified products and their unknown consequences to the food chain. This projects tries to invite Suntory back into the discussion.



Fig. 1: Photo: BCL



Fig. 2: Photo: BCL

Common Flowers: Moondust™ – Blue GM Carnations

White Out builds upon a previous artistic research project called *Common Flowers* in which the blue carnations were obtained as cut flowers and subsequently re-animated using basic plant tissue culture to grow, multiply and technically 'clone' the carnations. The main aspect of ComFlow was to create stable and easily replicable protocol for the recreating and replication of carnations using only ultra-low-cost supplies.

Flower Commons: Bio-sharing, Bio-hacking and Open-sourcing

If ComFlow can be seen as the act bringing moribund cut flowers back to life, *Flower Commons* is the proposed mechanism of distributing the plants and releasing them into the environment. This might appear as a drastic, illogical – even illegal – step. But: before the introduction of the Moondust™ carnations to the markets, Suntory was obliged to conduct thorough field trials to ensure, that the carnation do not pose any risks to other plants, animals and the environment in general. The outcome of these trials were positive, and Suntory was granted permission to grow and sell the flowers in their target markets. Therefore it can not be considered illegal to grow and release Moondust carnations in countries, where Suntory has the right to grow them.

We are further investigating the questions of intellectual property on plants and whether our tissue-culturing and multiplication of plant cells actually constitutes a copyright infringement of Suntory's rights. Can this be considered as Bio-piracy or as an act of freeing a political prisoner?

White Out: Re-engineering the wild type

White Out takes this project a step further by aiming to create a non-genetically modified plant from a previous GM plant. The goal is to exorcise the genes which were introduced to create the blue pedal colour, thus reverting the plant back to its wild type through bio-technological means.

This removal would change the pedal colour back to its unmodified, white state. Several techniques are currently evaluated to explore the extermination of the artificially introduced DNA, including conventional out-breeding

of the un-desired traits, chemically and/or radiological induced mutagenesis and reverse genetic modification.

Conclusion

The project also exemplifies an distributed group effort and investigates whether biotechnological knowledge can be created, acquired and shared within an artistic research setting. This reversal of changes in living organisms and restoration of its original, “natural” state questions the concepts of ‘change’, ‘untainted nature’, and ‘human manipulation’ in the ongoing biosciences in particular and in a wider social context in general.

References

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