KIDLINK Project - FAST PLANTS

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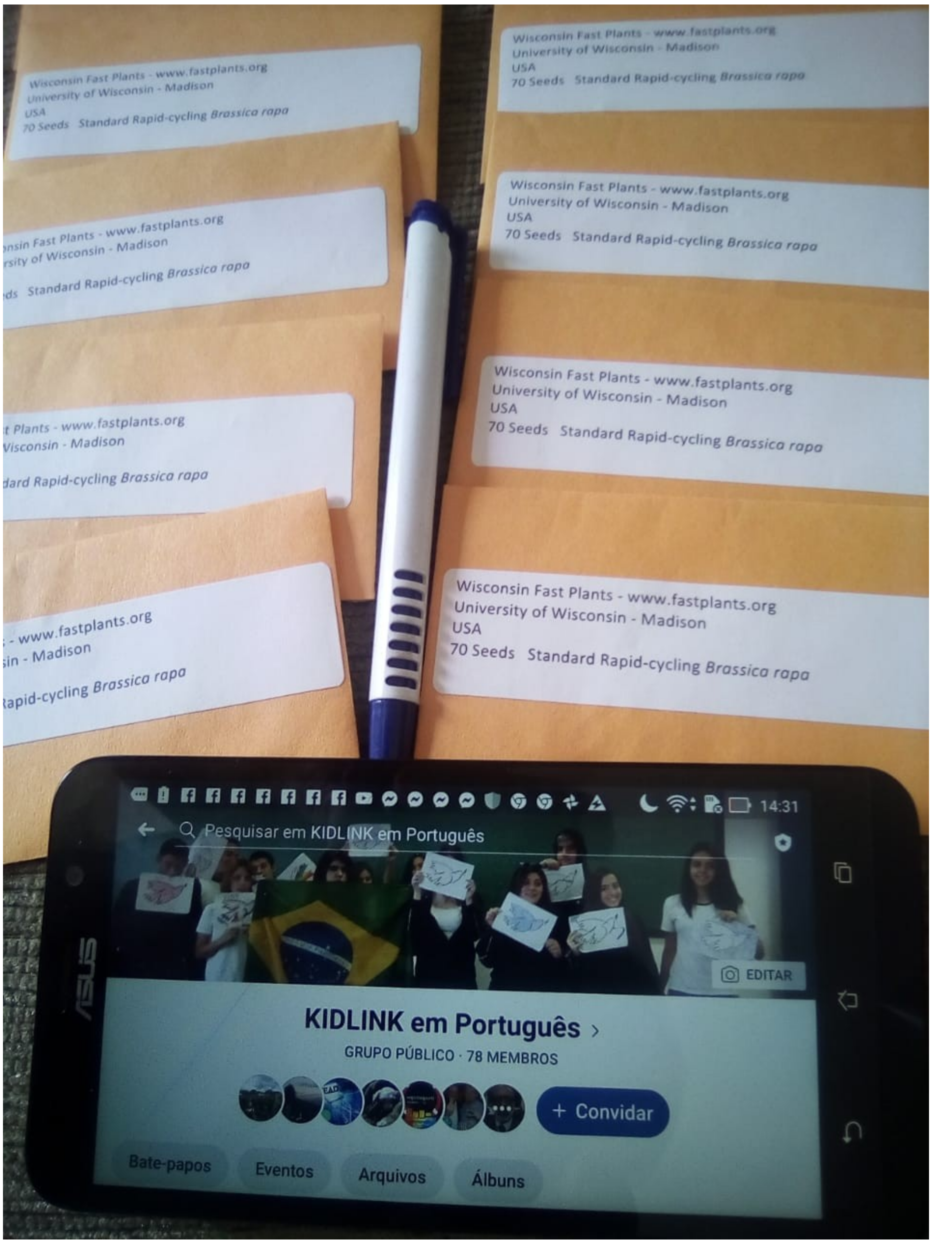
2022 - 2nd semester

date	***cycle day***	***activity***
	preparation	*Preparation of lighting* *Preparation of sowing and materials*
	day 1	*Plant to start the cycle.*
	days 2 e 3	*Water on top with the PIPETTE.* cotyledons emerge
	days 4 e 5	*Place a plant in each cell. Replant if necessary (carefully)*
	days 6 à 11	*Check the plants and soil moisture. Watch their growth and development.*
	day 12	*The buttons start to open. Prepare the bee sticks (your "bees").*
	days 13 à 18	*During this period, pollinate for 3 consecutive days. On the last day of pollination, remove flower buds that have not opened.*
	days 16 a 35	*Observe the development of the pods, the seeds in these pods and the embryos.*
	day 36	*Remove plants from pots and moisture and allow to dry for 4 days (see instructions).*
	day 40	*Remove seeds from already dried plants and store*

properly. Clean all material and store.

Always take pictures, every day, with at least 2 different angles…



https://www.facebook.com/groups/1577142539165653/

The need for good lighting

One of the biggest requirements for the success of the experiment is adequate lighting. Plants should be under continuous lighting, through cool, white lamps. The correct lighting must ALWAYS be at a distance of 5 to 10 cm. They can develop very well, in their own classrooms or in corridors at Eacola. RCBr can grow better in these open areas than in small grow rooms, where environmental parameters such as relative humidity and wind are difficult to control.

educational goals

Germinating in less than 12 hours and flowering in about 2 weeks, these seeds are very convenient to introduce students to many aspects of planting, seeding, growing and germinating in general. Buds appear in 48 hours, flower buds in 7 or 8 days and flowers begin to open in 12 or 13 days.

Many aspects of reproductive biology can be studied after flowering. Floral morphology and its intimate relationships with the honeybee provide an excellent example of co-evolution and interdependence between these two organisms. An understanding of the relationships between the bee and the flower can be obtained by dissecting and/or observing the parts of the flower and the bee.

Students can very effectively study the ability of a bee to collect pollen by **“bee sticking”** a dead bee and using this as a pollination mechanism for these plants. By investigating this pollination and controlling pollen, the mechanisms for the protection and self-defense of the species can be understood.

The results (protogenesis) and a consequent second generation with each experiment, can offer exciting material for students interested in the evolution, domestic use and multiplication of plants by artificial pollination.

The RCBr is well suited to our studies, as it responds well to physical and chemical stimuli during its development. It is also excellent for studying plant physiology, as changes can be assessed by the influence of light, nutrients and hormones on plant growth and photosynthesis. By studying how this plant responds to changes in its environment, we can lay the groundwork for interesting ecological studies. Variations in precipitation acidity, water salinity, soil chemical composition and atmosphere, give us excellent parameters for practical work. By modifying the environment, we can create a series of research and learning situations for students.

The RCBr life cycle

The plants for our experiment, the RCBr, which have an average life span of approximately 35 days, were developed from brassicas with a normal life span of 6 to 12 months for one cycle, through continuous genetic selection. This development facilitates cultivation for research and teaching purposes in Biology and Genetics. During a complete generation, the RCBr can be used to teach basic concepts of Biology, such as diversity, interaction with the environment, adaptations, genetic continuity, evolution, etc.

Under ideal conditions for the experiment, the plants can produce flowers within 14 days of being planted and be 13 cm tall. Fertilization occurs 24 hours after pollination and the pod is visible 3 to 5 days after pollination. The plants can be dried 20 days after the last pollination and for 40 to 42 days the seeds can be used and a new cycle begins.

Days 1 to 3
The radicle (root embryo) can appear in the seed in 1 day. This is easily observed by germinating a seed in a wet filter paper, in a Petri dish. By the third day the plant emerges from the mixture. Two cotyledons (live seeds) and the plant, begin to extend outwards, chlorophyll may already be apparent.

Days 4 to 9
On the fifth day, the cotyledons continue to expand and by the eighth day, flower buds appear as the plant develops.

Days 10 to 12
The stems elongate between the nodes (junction points). The leaves and flower buds continue to increase. As the stems grow, the flower buds go up high above the leaves

Days 13 to 17
Flower buds open and reveal the structure of the flowers. Pollination can thus be initiated (we pollinate for 3 or 4 days). Pollen is usable for 3 or 4 days and stigmas are receptive to pollen for 2 or 3 days after the flowers open. On the 17th, the flower buds that have not opened should be cut. Keep doing this until the 35th.

Days 18 to 22
Petals appear on the flowers. Endosperm and embryo develop and will form seeds on days 34 and 36. The stages of embryonic development can be seen by removing parts of the plant on different days, opening them to expose the eggs, and opening the eggs to expose the embryos. The embryo is surrounded by the endosperm, a thin, granular liquid that carries nutrients.

Days 23 to 36
Embryo development is complete and new seeds are formed. The pods begin to dry out. On day 36 the plants can be removed from the water source and the ripening process continues. As the seeds mature, the pods turn yellow, the embryo dehydrates and the seed husks turn brown.

https://www.facebook.com/WisconsinFastPlants/videos/511517262707069/

KPK Fertilizer Balls

Fertilizer that contains the main nutrients: Nitrogen, phosphorus and potassium in adequate proportions for the safe growth of your plants. Ideal to be applied to already formed plants. As it is a cover fertilization, it provides an intensification in the vigor, quality and resistance of the plant. Can be used on all types of plants.

What is NPK?

The acronym NPK followed by numbers indicates that the product is a chemical fertilizer. The N stands for nitrogen, the P stands for phosphorus, and the K stands for potassium. These elements are macronutrients and are present in most fertilizers, as they are necessary for all plants.
The numbers after them indicate the percentage of each element in the fertilizer's composition. For example, 1 kg of NPK fertilizer with formulation 10-10-10 has 100 g of N, 100 g of P and 100 g of K. The remainder, to complete the 100%, is composed of substances with no effect on the plant, or filling.
The values vary because each element has a function and must be used in greater or lesser amounts, according to the needs of the plant at each stage of development. Nitrogen stimulates the growth of shoots and leaves, phosphorus favors flowering and fruiting, and potassium strengthens plant tissues, making plants more resistant to pests.

Other resources used
Wick to moisten the earth by rising water…
Pollination sticks…

WISCONSIN FASTPLANTS
Life Cycle
Not GMO
Seed to Seed in 40 Days
Flowers in 14 Days