

Abstract

Graphical Abstract

Por que?

Abstract

Graphical Abstract

Abstract 1: This experiment will determine what will make enzymes affective and what will make them ineffective. We tested different samples of enzymes in a spectrophotometer and recorded their absorption rates. Six samples were placed in the spectrophotometer but two contained no enzyme; these acted as blanks for the other samples. The four remaining samples contained Catecholase ranging from 0.5 ml to 1.75 m. The second half of the experiment contained four test tubes with a constant amount of Catecholase, but the pH levels ranged from four to eight. It was found that if the enzyme was present in large amounts, then the absorption rate was high, and if the pH level ranged from 6 to eight then the absorption rate was high. Therefore it can be said that enzymes work well in neutral pH levels and in large amounts. (138words)

This experiment will determine what will make enzymes **affective** and what will make them **ineffective**.

Affective: Watch out for mix-ups of 'affect' and 'effect'.

We tested different samples of enzymes in a spectrophotometer and recorded their absorption rates.

Was the same enzyme used in every sample? What was in each sample, and what varied in each sample? Also, what does absorption have to do with enzyme activity? Which wavelength of light was used?

Six samples were placed in the spectrophotometer but two contained no enzyme; these acted as blanks for the other samples. The four remaining samples contained Catecholase ranging from 0.5 ml to 1.75 ml. The second half of the experiment contained four test tubes with a constant amount of Catecholase, but the pH levels ranged from four to eight.

This is too long and detailed to be in an abstract; it sounds as though it was pulled from the methods and materials section of the paper. Confusing. Wrong unit for enzyme concentration. Constant amount, which amount?

It was found that if the enzyme was present in large amounts, then the absorption rate was high, and if the pH level ranged from 6 to eight then the absorption rate was high.

This is just too general, although it conveys the right information. How large was the amount of enzyme?? When stating results it is okay to use actual numbers. Instead of saying that the absorption rate was high, specify how high in comparison to samples with low absorption rates.


Therefore it can be said that enzymes work well in neutral pH levels and in large amounts.

An experiment is never final, nor is it ever positive. Always avoid saying that the results you obtained are correct or definite. Instead just say that the data supported or did not support your hypothesis. Avoid saying your hypothesis was 'proved' or 'disproved'!

Abstract 2: This experiment was performed to determine the factors that positively influence enzyme reaction rates in cellular activities since some enzymes seem to be more effective than others. Catecholase enzyme activity was measured through its absorption rate in a spectrophotometer, using light with a wavelength of 540 nm. We compared the absorbance rates in samples with varying enzyme concentrations and a constant pH of 7, and with samples with constant enzyme concentration and varying pH levels. The samples with the highest enzyme concentration had the greatest absorption rate of 95% compared to the sample with the lowest concentration (24%). This suggests that a higher concentration of enzymes leads to a greater product production rate. The samples with a pH between six and eight had the greatest absorption rate of 70% compared to an absorption rate of 15% with a pH of 4; this suggests that Catecholase is most effective in a pH ranging from six to eight. (156 words)

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Denise Petri



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asking a friend to be my plus-one at a wedding

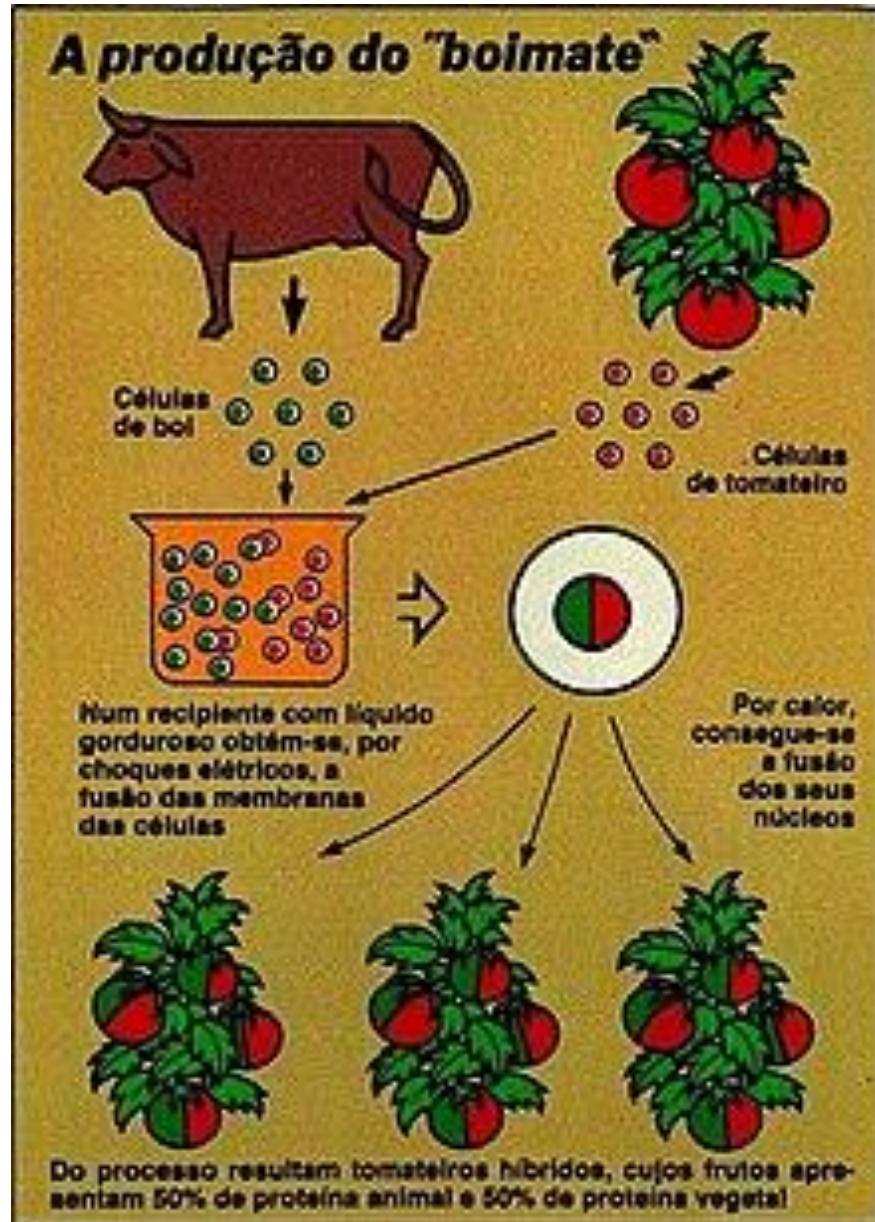
Please write an Abstract about hydrogels, maximum 200 words



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Hydrogels, three-dimensional networks of hydrophilic polymers capable of absorbing and retaining large amounts of water, have garnered significant interest across various fields due to their unique properties and diverse applications. This abstract provides a concise overview of hydrogel research, highlighting their synthesis, properties, and applications. Synthesis methods, including physical and chemical crosslinking, offer control over hydrogel structure and properties, influencing their mechanical strength, swelling behavior, and responsiveness to stimuli. Moreover, the tunable nature of hydrogels enables customization for specific applications, such as drug delivery, tissue engineering, biosensing, and wound healing. The biocompatibility and ability to mimic native tissue environments make hydrogels promising candidates for biomedical applications. However, challenges persist in achieving precise control over hydrogel properties, enhancing mechanical strength, and improving long-term stability. Addressing these challenges will unlock further opportunities for hydrogel utilization in biomedical and beyond, driving innovation in materials science and engineering.

144 words



Boimate foi o nome dado pela revista brasileira [Veja](#), a um suposto [híbrido](#) do [boi](#) com o [tomate](#) criado por cientistas alemães. Foi publicado erroneamente no artigo "Fruto da carne", em 1983, com base em um artigo satírico da revista britânica [New Scientist](#) publicado no [dia da mentira](#)

Scientists make the first plant-animal hybrid

SCIENTISTS have become so familiar with the fine structure of living cells, that their manipulation and culture now appear commonplace. Intact chromosomes can be lifted out of cells for genetic studies; plant protoplasts (cells devoid of their cell walls) can be persuaded to grow into whole plants and much has been learned of plant metabolism by grafting experiments—for example the grafting of tomato tops to potato tubers demonstrated the energy storing capacity of tubers, although the “hybrid” was of little practical value hybrids of potato and tomato cells have also been grown.

But perhaps the most exciting development has been in the sophistication of techniques used to create novel hybrid cells from two or more different cell types. One example of this has been the production of specific antibodies (monoclonals) made by fusing tumour cells and lymphocytes.

Now Barry MacDonald and William Wimpey of the Department of Biology at the University of Hamburg, have taken this research to its logical conclusion. Reporting in *The Phyrologist* (1983, vol 1, p 4) they describe their success in creating the first hybrid from a plant and animal cell.

Cell fusion techniques such as those used in making monoclonal antibodies for

example, have always relied on polyethylene glycol to fuse cell membranes together. The German researchers however, owe their bizarre achievement to a novel technique in which the cells are hybridised by a “heat-shock” process.



Placing an electrode into the culture medium and delivering an extremely short burst of current (a matter of nanoseconds) they found that the two different cell types fused together in pairs. (If the electrodes were immersed in the solution long enough, a stable temperature of over 200°C would be reached). The medium contains a high concentration of long chain polyunsaturated fats, similar to those found in some natural vegetable products. Cell pairs were removed, placed on nutrient agar and incubated in a warm (40°C) oven. By experimenting with the duration of incubation they found that fusion occurred

after only a few hours, and that viable hybrids could be grown in a liquid culture medium containing glucose, monosodium glutamate, a mixture of vitamins, sodium chloride and extracts of *Raphanus brassica* (common mustard).

Using these techniques MacDonald and Wimpey have fused cells of *Lycopersicon esculentum* with cells of *Bos taurus*. The resulting hybrid grows like its tomato parent but develops a tough leathery skin. Field trials have shown that the mature “plant” has an otherwise normal foliage, although its flowers are pollinated only by horseflies. After fertilisation though, the flowers develop extraordinary clumps of discus-shaped bodies—microscopic examination shows that these bodies are a true hybrid of animal protein sandwiched between a thin envelope of tomato fruit.

Attempts are now being made by the authors to cross these hybrids with wheat cells, hopefully to produce a wheat-tomato-cow “superhybrid”. Whether or not the fruits of such a hybrid could be commercially exploited is not yet clear, however MacDonald and Wimpey feel that they are on to something very exciting.

With the soaring costs of producing meat and feedstuffs for cattle, the animal-plant hybrids may well have a promising future. It would be *foolish* to dismiss this remarkable innovation out of hand. □