

EVALUATION OF BOWEL AND COLORECTAL CANCER TREATMENT BASED ON THE USE OF HEPATOPROTECTIVE PHYTOTHERAPY MEDICINES IN ASSOCIATION

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INTRODUCTION

Neoplasms, better known as cancer, are chronic multicausal diseases characterized by the uncontrolled growth of cells. They are identified as the second biggest cause of morbidity and mortality globally. Some research shows that in the year 2030, around 27 million new cases of cancer will appear, resulting in 17 million deaths.

Colorectal cancer (CRC) is the most common malignancy of the gastrointestinal tract and is the third leading cause of cancer associated with death worldwide (Brenner et al, 2010). The most common type is adenocarcinoma, which affects the most proximal portions of the small intestine and, like adenomas, arises from the glands and mucous membranes of the epithelium, and may be a rare complication of celiac disease or Crohn's disease.

The triggering factors for bowel and colorectal cancer are strongly associated with eating habits and physical activity, where the population has become increasingly exposed to these factors and less exposed to protective factors.

Excess body fat increases insulin levels, promoting cell growth and inhibiting the apoptosis process, also promoting a state of chronic inflammation in the body resulting from the accumulation of fat that promotes carcinogenesis in intestinal cells.

Currently, the treatment of cancer, for the most part, is considered one of the most challenging problems in medicine. Depending on the location, extent and type of cancer, one or a combination of treatments can be chosen, including surgery, radiotherapy and chemotherapy. However, there is an increasing demand for other "alternative and/or complementary" treatments for cancer by patients, focusing on the use of plant species.

The liver is the largest organ in the human body weighing approximately 1.6 kg and

performs many functions in the body such as: production of bile, functions as a blood reservoir, has a very high lymphatic flow and high capacity for regeneration, metabolic functions (synthesis of carbohydrates, fats and proteins), production of clotting factors in addition to the removal and excretion of drugs.

The majority of damage caused to liver cells is caused by hepatotoxic agents, mainly by inducing lipid peroxidation and oxidative damage. In this sense, the use of hepatoprotective herbal medicines, such as Chilean boldo (*Peumus boldus*), dandelion (*Taraxacum officinale*) and marapuama (*Ptychopetalum olacoides*) can contribute to maintaining optimal liver function and protecting against oxidative damage.

The previously mentioned herbal medicines associated with amino acids such as methionine, glutamic acid and aspartic acid can have therapeutic effects, enabling the body to recover by promoting its homeostatic balance.

Tissue restitution studies in reptiles are frequent as they are frequently exposed to mutilations and injuries. In crocodylians, the regenerative capacity of the tail, jaw and skin injuries stands out.

PROPOSITION

The present project aims to analyze the effectiveness of the treatment of intestinal and colorectal cancer based on hepatoprotective herbal treatment associated (dandelion, boldo-Chile and marapuama) with amino acids (aspartic acid, glutamic acid and methionine improving liver functions, promoting the body's recovery from pathology.

This project aims to evaluate the joint administration of a vaccine extracted from the alligator's spinal cord on the body's response to the progression of the disease. Studies related to the development of this vaccine are being

carried out by ``Orgolabs Laboratórios``.

MATERIAL AND METHODS

The experimental procedure is being developed at UNESP in Botucatu – SP

On the first day:

After the cells reached 70% confluence, they were released from the bottle with trypsin for 5 minutes.

Cells were counted in a Neubauer chamber and 100,000 cells were placed per well (HCT-8) and 30,000 cells (C3A) in the 0.4 μ M insert.

The cells were cultivated with DMEM culture medium, added with 5% fetal bovine serum and 1% anti-anti for 24 hours in an oven to ensure adherence to the plate/insert.

In the second day:

After 24h, the medium was removed from the wells and inserts.

DMEM culture medium without fetal bovine serum was placed in the wells and DMEM culture medium without fetal bovine serum plus the drug to be studied in different concentrations were placed in the inserts. (3%, 1.5%, 0.75%, 0.25% and 0.12%).

The cells were cultivated for 24 hours in a greenhouse for the drug to take effect.

On the third day:

After 24h, the inserts were removed from the wells and MTT (0.5 mg/mL) diluted in DMEM culture medium without fetal bovine serum was added to the wells.

After 4 hours, the MTT was removed and the cleaved salt at the bottom of the plate was diluted with DMSO.

The plate was read on the spectrophotometer (490 nM).

* HCT-8 – colon tumor cells

C3A – liver cell

* Cells are grown in a humid CO₂ greenhouse at 37°C.

PREPARATION OF HERBAL MEDICINES AND AMINO ACIDS

Herbal medicines were obtained from dandelion, Chilean boldo and marapuama extracts. These medicines were prepared by the company ``Orgolabs Laboratórios``, located in the municipality of Descalvado – SP. The herbal medicines were prepared according to information present in the literature and Brazilian Pharmacopoeia. The amino acids used were also produced and supplied by ``Orgolabs Laboratórios``.

PREPARATION OF THE VACCINE EXTRACTED FROM THE ALLIGATOR SPINAL CORD

The alligator vaccine is produced from the alligator's spinal cord, being hydrolyzed in a chemical process at pH and temperature, transforming it into a hydrolyzate, also chemically neutralized at physiological pH, packaged in 10mL glass bottles sealed with a rubber cap and seal. in aluminum, later being sent to the company Embrarad, in the city of Cotia-SP, for the Cobalt irradiation process at 25 KGY, which will make it sterile for 5 years. The entire vaccine preparation process was carried out by Orgolabs Laboratórios.

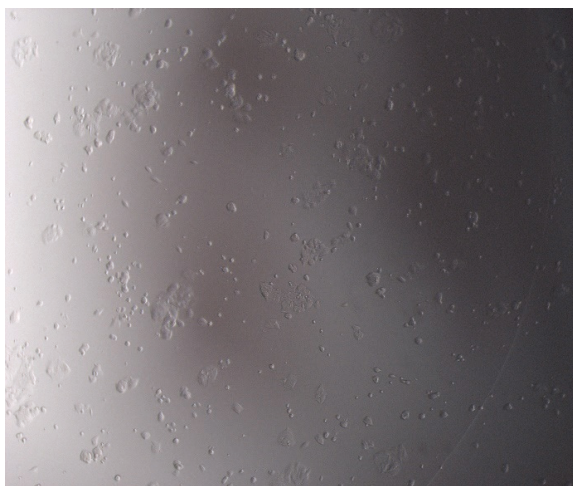
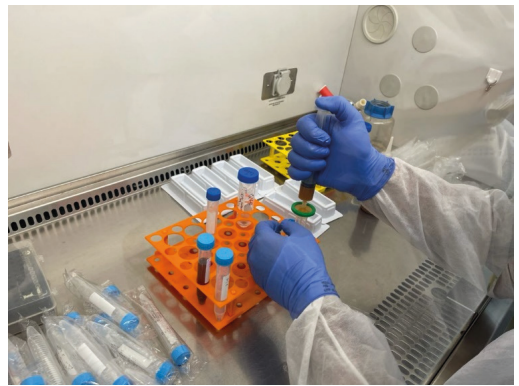


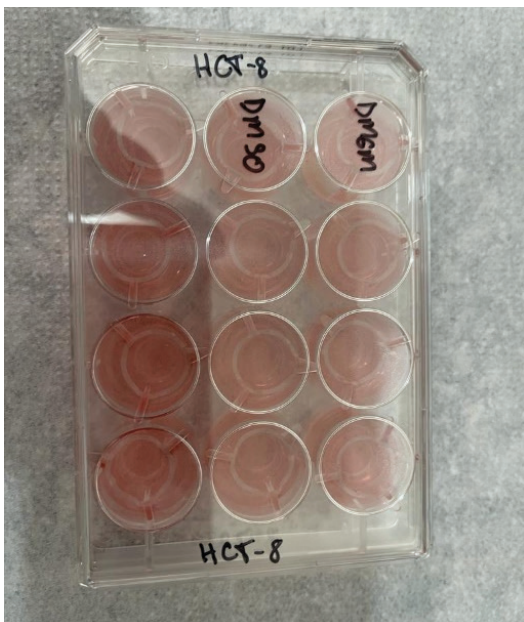
Plate HCT-8 cell in 96 wells



C3A cell plate in 96 wells

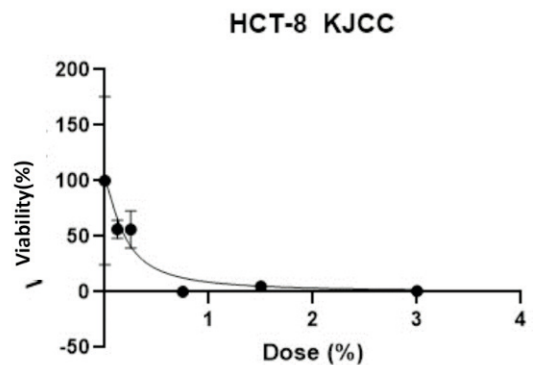


Phytotherapeutic compound being filtered to eliminate residual plant particles



Cells in wells with DMEM culture medium and DMSO diluent

RESULTS



CONCLUSION

With the present work it was possible to prove the effectiveness of the herbal compound in association with amino acids and the injectable extracted from alligator marrow, as by carrying out the in vitro process it can be demonstrated the death of intestinal and colorectal cancer tumor cells in 100 % in drug dosage at a concentration of 3% in 24 h. With the results obtained, it can be proven that the first step towards saying that I have a cure for colorectal cancer has been taken.

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