The juicy, bright-red pulp of the Rio Red grapefruit may help prevent cancers of the prostate, breast and cervix. Scientists say the Rio Red contains the chemical compound lycopene, which fights cancer-causing agents.

Lycopene, which a Harvard scientist found in red tomatoes four years ago, already is proven to prevent prostate cancer. Now, researchers have found the same compound in the darkest red variety of grapefruit, the Rio Grande Valley's own Rio Red.

Scientists at the Texas A&M-Kingsville Citrus Center in Weslaco already have tested several varieties of grapefruit ranging from the pale-yellow Marsh White grapefruit to the succulent Rio Red in search of lycopene. The compound is known as a "nutraceutical," a substance that helps in preventing diseases.

The Citrus Center grapefruit tests are part of an experiment conducted by Bhimu Patil, a plant physiologist, and Gerson Peltz, a Brazilian physician, to see which varieties contain the optimum amount of lycopene and other cancer-fighting chemicals like citric acid and pectin.

"If we prove the Texas grapefruit has a high lycopene content, we can really sell our fruit," Patil said. "The high quantity of lycopene we are not able to get in other states like California and Florida because of the weather and climate." Patil thinks besides the hot summers the reddish color may be related to the root stock, or bottom part of the plant, which may absorb a greater amount of nutrients from the soil.

"We are in the process of figuring out why we have really red grapefruit," Patil said, adding it simply may be a mystery of Mother Nature. Patil and Peltz's study of the nutritional benefits of grapefruit is expected to take two years.

The samples of lycopene extracted from the pulp will be sent to the Institute of Bioscience and Technology in Houston, where they will be tested on cell-culture models to see if the lycopene content of the Rio Red really is a nutraceutical wonder.

"It may turn out that we may have a higher lycopene content than tomato," Patil said. Garlic is currently number one on the National Cancer Institute's nutraceutical list, with citrus not far behind. However, citrus is a general term that doesn't specifically mention the especially lycopene-rich Rio Red variety of grapefruit, Patil said.

"If we prove we have high levels of these compounds, there is a possibility we can bring this (Rio Red) to the top (of the chart)," Patil said. "Lycopene has already proven it prevents prostate cancer, and it can prevent cervical and breast cancer."
Yellow-white pulp grapefruit varieties like the Marsh White do not contain lycopene. The current test is to determine if varieties in between Rio Red and Marsh White do have traces of lycopene, and if so, exactly how much. If scientists can identify the source of the high level of lycopene in the Rio Red, that could lead to improvement of quality and lycopene content of other grapefruit varieties.

Last year, the United States spent $100 billion in cancer treatment, Peltz noted. "The better tool is prevention," he argues. "In 20 years we won't have money (for) cancer treatment," Peltz said. "We hope to find the compounds lycopene and pectin in the Valley. We think this is the way to stop the cancer problem . . ."

In Europe, evidence already has shown people with a high lycopene level in their blood have a lower incidence of cancer, Patil said. This is due to their diet, which Americans could emulate by eating foods rich in lycopene -- like Rio Red grapefruit. Another plus is that Rio Red is a sweet variety, whose good taste makes it more attractive to consumers, Patil said.

"If the grapefruits are too sour, it's hard to tell your kids to eat grapefruit every day," he said. "Kids started liking this grapefruit because it is not too sour, not too sweet -- a good blend."