



**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM- 590 010**

PROJECT WORK

**“PHYTOCHEMICAL, VITAMIN-C AND ANTIOXIDANT EVALUATION OF
SOME UNDEREXPLOITED FRUITS”**

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of***

**BACHELOR OF ENGINEERING
IN
BIOTECHNOLOGY**

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ABSTRACT

Plants have always been a significant source of natural products having therapeutic potential. A whole range of plant derived dietary supplements, phytochemicals and pro-vitamins that assist in maintaining good health and combating disease are now being described as functional foods, nutraceuticals and nutraceuticals. A wealth of information and scientific evidences are rapidly accumulating that shows the beneficial effects of a wide variety of food components on human health. In this context, fruits and vegetables are immensely valued not only for their nutritional content but also for their potential health functionality against various degenerative diseases such as cancer, cardiovascular, cataract, diabetes and neurodegenerative diseases like Alzheimer's and Parkinson's. Free radicals (super oxide, hydroxyl radicals and nitric oxide) and other reactive species (hydrogen peroxide, hypochloric acid and proxynitrite) produced during aerobic metabolism in the body, can cause oxidative damage of amino acids, lipids, proteins and DNA. It has been established that oxidative stress is among the major causative factors in the induction of many chronic and degenerative diseases including atherosclerosis, ischemic heart disease, ageing, diabetes mellitus, cancer, immunosuppression, neurodegenerative diseases and others. The most effective way to eliminate free radicals which cause the oxidative stress is with the help of antioxidants. These antioxidants can prevent or delay oxidative damage of lipids, proteins and nucleic acids by reactive oxygen species (ROS). Phytochemicals like carotenoids, tocopherols, ascorbic acids, lipoic acids, polyphenols and the vitamins such as vitamin C and E are strong natural antioxidants with free radical scavenging activity. Polyphenols act against allergies, ulcers, tumors, platelet aggregation and cardiovascular diseases and can reduce the risk of cancer.

Vitamin C serves a predominantly protective role in the body. The protective role of vitamin C goes far beyond our skin and gums. Cardiovascular diseases, cancers, joint diseases and cataracts are all associated with vitamin C deficiency and can be partly prevented by optimal intake of vitamin C. About 25% of the vitamin C in vegetables can be lost simply by blanching (boiling or steaming the food for a few minutes). Consumption of vitamin C-rich foods in their fresh, raw form is the best way to maximize vitamin C intake.