

# Benefits and dangers of golden rice

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The paper “ Benefits and Dangers of Golden Rice” is a wonderful example of a term paper on family and consumer science.

Golden Rice is a GMO product. Shortly after developing Golden rice, Ingo Potrykus emerged on the cover of “ Time magazine” (7 August 2000), headline saying that “ This Rice could save a million kids a year” from loss of sight because of lack of vitamin A. In order to generate “ pro-vitamin A or b-carotene”, Golden Rice was genetically modified (Karen. 2010). GR1 was developed with the typical ‘ first generation’ genetic alteration techniques, employing GM constructs that trigger uncontrollable mutations to the host crop genome, with many unplanned impacts. Benefits of Golden Rice According to the “ Golden Rice project” article, (2012), B-carotene is produced in the golden rice leaves excluding the grain. In “ Golden Rice” development, through genetic modification process, two genes have been included in the “ rice genome”. This is to revive the “ carotenoid biosynthetic” process that leads to the production and accumulation of  $\beta$ -carotene in the grains. The golden colour intensity indicates the strength of  $\beta$ -carotene in the endosperm. Sample of Golden Rice” was first produced in 1999, since that time new lines containing more  $\beta$ -carotene Vitamin have been produced. The aim is to supply the recommended everyday allowance of vitamin A in rice “ 100-200g of  $\beta$ -carotene”-consisting of rice. This is equal to the quantity of rice eaten every day by children who reside in rice-based communities, for instance, “ India, Vietnam or Bangladesh”. Golden rice is still considered valuable in other nations in supplying children with a balanced diet hence, help in the reduction of medical and sub-medical diseases associated with lack of vitamin A (Golden Rice Project, 2012). Annually, more than 250, 000 to 500, 000 children lose their eyesight due to <https://assignbuster.com/benefits-and-dangers-of-golden-rice/>

“ Vitamin A deficiency” (VAD) according to “ World Health Organization” reports. Blindness and corneal problems indicate more acute underlying health challenges. Approximately half of the children who become blind due to VAD die after a period of 1 year (Golden Rice Project, 2012). Golden rice is considered to help in supplying Vitamin A in most of the isolated rural regions. A strong, intensive and interdisciplinary effort is required in order to accomplish this objective. Combined efforts of “ scientists, farmers, regulators, and policymakers” are essential. Farmers and consumers require training. The most desirable option would be a varied and sufficient diet; however, this goal cannot be attained in the short term. Reasons for failure to achieve this goal range from customs to geographical and economical limitations (Golden Rice Project, 2012). Dangers of GMOs Research conducted whereby a harmless protein moved from bean to pea led to acute inflammation in the lungs of mice. The research shows that “ Transgenic protein” might be the cause of danger. The poison of herbicides and, glyphosate, whereby more 80% of GM crops now cultivated worldwide are made tolerant, is extremely toxic to an individual’s “ placenta and embryonic cell” (Mae-Wan, 2009). According to Mae-Wan (2009), Tufts University in Boston has been conducting a medical test of “ Golden Rice” on children. Many senior scientists and academics have tried to criticize the “ clinical trials”. The test violates the “ Nuremberg Code of Ethics” incorporated at the end of the Second World War to avert a repetition of trials carried out by Nazi scientists on many children. Clinical test conducted on children display the failure of the regulatory organization Another major hazard caused by GM organisms (GMOs) is increased horizontal gene movement and recombination. “ Horizontal gene” transfer is significantly worse among

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transgenic plants comparable to Golden Rice this includes both GR1 and GR2 that were developed using the “ Agrobacterium binary vector system” (Mae-Wan, 2009). Agrobacterium bacteria and the “ binary vector” tend to continue in the transgenic plants, supplying a medium for conveying a more horizontal gene to all species that come into contact with the transgenic plant material, as well as human cells (Mae-Wan, 2009). “ Horizontal transfer of transgenic DNA” permits the formation of fresh pathogens. “ Horizontal transmission of transgenic DNA” into human cells has the potential to cause harmful mutations comprising of cancer (Mae-Wan, 2009)The extreme risk of GMOs is that genetic change was motivated by the “ old genetic determinist paradigm”, already outdated by the modern genetics of the fluid genome roughly as soon as the genetic change began the late 1970s. There a lot of indications that the technology is not efficient. Genetic experts have documented how toxic substances influence the individual exposed to GMOs as well as the generations born later. That is the reason why risk evaluation of GMOs and other xenobiotics must be conducted for more than three generations. According to the latest report commissioned by “ food watch” in Germany, the Golden Rice grains specimen was taken to Germany in 2001 for a feeding experiment with mice. When the grains were examined for carotenoid contents, it composed less than one percent of the quantities assumed. After cooking, the amount of carotenoid decreased by another 50 percent, so the examination was discontinued. There exist a cheaper source of vitamin A or pro-Vitamin A, for instance, carrots and particular green vegetables rich in other vital vitamins and minerals, and therefore much healthier (Mae-Wan, 2009). Golden Rice composes all trappings of a “ Trojan Horse” to get GM rice broadly to Third World nations. It is being combined

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with local mixtures, in an attempt to contaminate and endanger the key rice manufacturers and consumers in the globe, which comprise the poorest, most susceptible countries. The main cause of starvation and undernourishment in the Third World is the modern monoculture of the Green Revolution, which destroyed agricultural biodiversity and soil productivity (Karen. 2010). This has resulted in a lack of mineral and micronutrient in food produced. Just like other GM Crops being encouraged by the “Doubly Green Revolution” is industrial monoculture and will make the trend worse. There is enough evidence that exposure of many animal species to an assortment of genetically modified plants, food, and feed obtained from GMOs, can trigger illnesses, infertility, and death, This raises the distinctive prospect that genetic alteration is naturally dangerous. Problems and hazards caused by GMOs include socioeconomic impacts. Conclusion Releasing GMOs to the environment should be banned. Europe has put in place policies that must maintain and encourage organic, localized and biodiverse farming that is the most efficient means to provide health, prosperity, and contentment to the world’s nations, as revealed in the ISIS report