

## P55 : GLYPHOSATE AND CARCINOGENICITY RISK

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Glyphosate is substance derived from glycine amino acid. Patent is taken in 1964 as mineral chelator. Later in 1974 it has been in the agricultural market after getting its patent as herbicide. Mechanism of action is 5-enolpyruvylshikimate-3-phosphate synthase inhibition which is found in certain plants and bacteria.

In 2011, it is most consumed herbicide that world used 650.000 tons of which U.S. made its 120.000. Its usage increased efficiency but glyphosate resistance issues emerged. Starting in 1996 glyphosate resistance gene added to soybean, cotton, canola, corn, alfalfa and sugar beet respectively. Besides increasing the efficiency, harsh debates began about the impact on health.

Who argue its not toxic to human say enzymes which glyphosate-based herbicides effect directly, does not exists on human. Besides, glyphosate as chelator, links to cofactor in human enzymes, making them inactive, also toxic to the intestinal flora and associated with diseases such as celiac, autism, kidney and intestinal diseases, infertility, neurotoxicity and congenital defects.

Related to carcinogenicity, in 1985, United States Environmental Protection Agency classified Glyphosate with studies in mice firstly in Group C (Possible human carcinogen ), then in 1991 re-evaluated to group E (non-carcinogenicity in humans).

The International Agency for Research on Cancer (IARC) made its classification for Glyphosate in group IIA (probably carcinogenic to humans) in 2015, indicating that there is sufficient evidence for carcinogenicity in experimental animals and despite the negative results in bacteria, it leads to DNA and chromosomal damage in human cells.

**Conclusion;** IARC Glyphosate's IIA classification is still controversial, because dosages of this effect is not specified and also numerous studies show the opposite. However, the results must be noted by scientific institutions and public health authorities and risk assessment must be made considering doses and real-life conditions.

**Keywords:** carcinogenicity, Glyphosate, herbicides