

转基因食品安全评估

杨晓光

中国疾病预防控制中心营养与食品安全研究所, 北京 102206

食品安全总是相对的,属于风险事件,但是人们倾向于认为传统食物是安全的,而转基因食品的安全性难于评估。转基因食品的安全性质疑主要包括:营养成分和抗营养因子、转基因作物蛋白质的毒性及致敏性、标记基因的安全性(如耐抗生素)以及非预期效应(长期效应)。

对转基因食品的安全评估坚持的原则包括风险分析原则、实质等同原则、个案分析原则和逐步推进原则等。根据国际食品法典委员会对安全评估的指导方针,我国颁布了针对重组 DNA 植物的安全评估准则,其中包括了转基因食品安全评估准则。

转基因食品的风险评估将通过与相对应的非转基因食品做比较来进行,并且坚持个案原则。以华

中农业大学提供的水稻品种 Bt 汕优 63 和其亲本明恢 63 为例,对转基因事件导入的新蛋白(后称新蛋白)毒性检验以急性经口毒性试验数据为基础,结果发现,新蛋白(cry1Ab/cry1Ac)不出现副反应的剂量水平为 5 g/kg,这意味着一位 50 kg 体质量的消费者每天食用 1 kg 转基因水稻其安全系数依然高达 10 万。此外,对哺乳动物大鼠进行的 90 d 转基因水稻全喂养试验也表明,没有任何不良反应发生。经过全部安全性评估试验,我们得到的结论是:Bt 汕优 63 转基因水稻与明恢 63 常规稻同样安全。事实上,至今人们没有发现任何一例转基因食品对人体健康产生急性毒性、亚急性毒性以及慢性危害,这些结论证实转基因食品是安全的。

中图分类号 Q 785; TS 201.6 文献标识码 A 文章编号 1000-2421(2014)06-0110-02

Food safety assessment derived from GMO

YANG Xiao-guang

*National Institute of Nutrition and Safety, Chinese Center for Disease
Control and Prevention, Beijing 102206, China*

Food safety is relative, it is risk incident, but people think traditional food is safe, and GMF is a challenge for risk assessment. The main food safety issues for GMF are nutrients and anti-nutritional factors, toxicity and allergenicity for protein from GM, safety of marker genes (antibiotic resistance) and unintended effects (long-term). The principles of safety assessment for GMF are risk analysis, substantial equivalence, case by case and step by step. Follow the Guide Line on Safety Assessment of CAC, China has developed The Guide Line on Safety Assessment of Recombinant-DNA Plant, including food safety. The Risk Assessment will be carried out competing with the conventional counterpart case by case. Such as the Bt Shanyou 63 rice and its parental Minghui 63 rice provided by the Huazhong Agricultural University. Toxicity test for new proteins was carried out, based on the data of acute oral toxicity. The no observable adverse effect level (NOAEL) of new protein (cry1Ab/cry1Ac) is 5 g/kg bw; if the consumer (50 kg body weight) eats 1 kg rice per day, the safety factor is 100 000. There was no observable adverse effect in whole food feeding test in rats for 90 days. Through all of the safety evaluation tests, the results was that Bt Shanyou 63 rice was as safe as its parental Minghui 63 rice. In fact, no any acute, subacute or chronic hazards on human health has been found from marked GM foods, concluding approved GMO food is safe.

翻 译：刘海军 校 正：马伟华 华中农业大学作物遗传改良国家重点实验室

Food safety assessment derived from GMO

Xiaoguang Yang

*National Institute of Nutrition and Safety, Chinese Center for Disease
Control and Prevention, Beijing, 102206, China*

Food safety is relative, it is risk incident, but people think traditional food is safe, and GMF is a challenge for risk assessment. The main food safety issues for GMF are nutrients and anti-nutritional factors, toxicity and allergenicity for protein from GM, safety of marker genes (antibiotic resistance) and unintended effects (long-term). The principles of safety assessment for GMF are risk analysis, substantial equivalence, case by case and step by step. Follow the Guide Line on Safety Assessment of CAC, China has developed The Guide Line on Safety Assessment of Recombinant-DNA Plant, including food safety. The Risk Assessment will be carried out competing with the conventional counterpart case by case. Such as the Bt Shanyou 63

rice and its parental Minghui 63 rice provided by the Huazhong Agricultural University. Toxicity test for new proteins was carried out, based on the data of acute oral toxicity. The no observable adverse effect level (NOAEL) of new protein (*cry1Ab/cry1Ac*) is 5 g/kg bw; if the consumer (50 kg body weight) eats 1 kg rice per day, the safety factor is 100 000. There was no observable adverse effect in whole food feeding test in rats for 90 days. Through all of the safety evaluation tests, the results was that Bt Shanyou 63 rice was as safe as its parental Minghui 63 rice. In fact, no any acute, subacute or chronic hazards on human health has been found from marked GM foods, concluding approved GMO food is safe.