

INHIBITORY EFFECT OF FERMENTED PAPAYA PREPARATION ON OXIDATIVE DNA DAMAGE AND TISSUE INJURY IN THE BRAIN FORMED DURING IRON-INDUCED EPILEPTOGENESIS IN RATS

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Fermented papaya preparation (PS-501, SAIDO Co., Fukuoka, Japan) is a natural functional health food by yeast fermentation of *Carica Papaya Linn.* Previously we found that PS-501 had free radical scavenging activity against hydroxyl radical and had inhibited lipid peroxide formation in brain and plasma of rats. In the present study we examined inhibitory effect of PS-501 on DNA damage and tissue injury in the brain formed during iron-induced epileptogenesis in rats. 8-Hydroxy-2'-deoxyguanosine (8-OHdG) is a main product of oxidative DNA damage and 8-OHdG level in rat brain was assayed using high-performance liquid chromatography (HPLC). 8-OHdG level in the ipsilateral cerebrum was found to be increased 30 minutes after injection of ferric chloride solution into the left sensory motor cortex of rats. However, one month-administration of PS-501 in drinking water inhibited the increase in 8-OHdG levels in the cerebrum. Recently we obtained images of nitroxide radicals in rat brain following intraperitoneal injection of 3-carbamoyl-2,2,5,5-tetramethyl-1-pyrrolinyloxy (C-PROXYL) 3 hours after injection of ferric chloride solution using L-band electron spin resonance computed tomography (ESR-CT). One month-administration of PS-501 inhibited the appearance of nitroxide radical in image of rat brain. These results suggested that some active components of free radical scavengers in PS-501 may pass the blood brain barrier and inhibited DNA damage and tissue injury in the brain formed during iron-induced epileptogenesis in rats.