View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

慢性腎不全モデルラットにおける キトサンの抗酸化及び腎保護効果

安楽　誠*、冨田久夫、道原明宏、土谷大樹、
庵原大輔*、前崎祐二*、上釜兼人*、丸山　徹***、
小田切優樹*、平山文俊*

Carbohydrate Polymers, **89** (1), 302-304 (2012)

Antioxidant and renoprotective activity of chitosan in nephrectomized rats

Makoto Anraku*, Hisao Tomida, Akihiro Michihara, Daiju Tsuchiya,
Daisuke Iohara*, Yuji Maezaki**, Kaneto Uekama*, Toru Maruyama***,
Masaki Otagiri*, and Fumitoshi Hirayama*

ABSTRACT: The effect of chitosan on oxidative stress and chronic renal failure was investigated using 5/6 nephrectomized rats. The ingestion of chitosan over a 4-week period resulted in a significant decrease in total body weight, glucose, serum creatinine and indoxyl sulfate levels (P = 0.0011, P = 0.0006, P = 0.0012, and P = 0.0005, respectively), compared with the non-treated nephrectomized group. The ingestion of chitosan also resulted in a lowered ratio of oxidized to reduced albumin (P = 0.003) and an increase in biological antioxidant potential (P = 0.023). Interestingly, the oxidized albumin ratio was correlated with serum indoxyl sulfate levels *in vivo*. These results suggest that the ingestion of chitosan results in a significant reduction in the levels of pro-oxidants, such as uremic toxins, in the gastrointestinal tract, thereby inhibiting the subsequent development of oxidative stress in the systemic circulation.

抄録　慢性腎不全モデルラットにキトサンを摂取させた結果、キトサン非投与群と比較して有意な血清クレアチニン及び血中インドキシル硫酸の低下と抗酸化効果の増加が観察された。またインドキシル硫酸濃度変化と酸化ストレスの指標であるアルブミン酸化度の変化に良好な相関関係が確認されたことから、キトサンによる尿毒症物質の吸着作用が血中の抗酸化作用の増加につながることが示唆された。

* Faculty of Pharmaceutical Sciences, Sojo University
崇城大学薬学部
** Nippon Kayaku Food Techno Co., Ltd.
日本化薬フードテクノ
*** Graduate School of Pharmaceutical Sciences, Kumamoto University
熊本大学大学院医学薬学研究部