

Sugiyama, K., Muroi, M., Tanamoto, K., Nishijima, M. and Sugita-Konishi, Y: Deoxynivalenol and nivalenol inhibit lipopolisaccharide-induced nitric oxide production by mouse macrophage cells, *Toxicol. Lett.* 192, 150-154 (2010).

Sugiyama, K., Kawakami, H., Kamata, Y. and Sugita-Konishi, Y: Effect of a combination of deoxynivalenol and nivalenol on lipopolisaccharide-induced nitric oxide production by mouse macrophages, *Mycotoxin Res.* 27, 57-62 (2011).

Sugiyama, K., Kinoshita, M., Kamata, Y., Minai, Y. and Sugita-Konishi, Y: (-)-Epigallocatechin gallate suppresses the cytotoxicity induced by trichothecene mycotoxins in mouse cultured macrophages, *Mycotoxin Res.* 27, 281-285 (2011).

杉山圭一：第47回 SOT におけるマイコトキシン関連研究発表の動向 (From 47th SOT meeting), *Mycotoxins.* 58, 155-157 (2008) .

杉山圭一：自然免疫からみた免疫毒性 (An innate immunity-based approach for examining immunotoxicity -Bacteriology has led me to the field of immunotoxicology-), *ImmunoTox Letter.* 13, 8-9 (2008) .

杉山圭一：麹菌と *Aspergillus* 属についての一考察, *生物工学会誌.* 86, 557 (2008) .

杉山圭一, 室井正志, 棚元憲一, 小西良子: LPS 誘導性一酸化窒素産生におよぼすトリコテセン系マイコトキシンの影響, エンドトキシン研究 12 - 自然免疫学の新たな展開 -. 高田春比古, 谷徹, 嶋田紘 (編) . 81-83 医学図書出版株式会社. (2009) .

杉山圭一, 小西良子: 食品のマイコトキシンに関する欧米の規制と日本の規制, *フードケミカル.* 264, 73-78 (2007) .

小西良子, 杉山圭一: カビ毒のリスク評価と国際的な動向, *食品衛生学雑誌.* 49, 1-10 (2008) .

杉山圭一, 小西良子: わが国におけるカビ毒による食中毒とその現状, *公衆衛生.* 73, 350-352 (2009) .

小西良子, 杉山圭一: マイコトキシン被害の現状とその対策について, *獣医公衆衛生研究.* 12, 9-11 (2010) .

F. 研究業績

【原著論文】

1. Sugiyama, K., Kawakami, H., Kamata, Y. and Sugita-Konishi, Y: Effect of a combination of deoxynivalenol and nivalenol on

lipopolisaccharide-induced nitric oxide production by mouse macrophages, *Mycotoxin Res.* **27**, 57-62 (2011).

2. Sugiyama, K., Kinoshita, M., Kamata, Y., Minai, Y. and Sugita-Konishi, Y: (-)-Epigallocatechin gallate suppresses the cytotoxicity induced by trichothecene mycotoxins in mouse cultural macrophages, *Mycotoxin Res.* **27**, 281-285 (2011).

3. Sugiyama, K., Kinoshita, M., Kamata, Y., Minai, Y., Tani, F. and Sugita-Konishi, Y: Thioredoxin-1 contributes to protection against DON-induced oxidative damage in HepG2 cells, *Mycotoxin Res.* (in press).

【プロシーディング】

1. Sugiyama, K., Kinoshita, M., Minai, Y., Muroi, M., Tanamoto, K. and Sugita-Konishi, Y: Trichothecene mycotoxins inhibit MyD88-independent pathways of Toll-like receptors, *Cytokine.* **56**, 39 (2011).

【学会発表】

1. Sugita-Konishi, Y., Koyama, D., Kadota, T., Itoh, S., Sugiyama, K., Tamura, C., Nishijima, M. and Kamata, Y: Suppressive Effect of Pectin Gelation on Absorption of Deoxynivalenol in Mice, 49th

Society of Toxicology (2010, 3).

2. Sugiyama, K., Kinoshita, M., Kamata, Y., Minai, Y. and Sugita-Konishi, Y: Studies of protective effects of green tea catechins against cytotoxicity induced by trichothecene mycotoxins in mouse cultural macrophages, International Mycotoxin Conference MycoRed 2010, 190 (2010, 12).

3. 杉山圭一、木下麻緒、薬袋裕二、室井正志、棚元憲一、小西良子：トリコテセン系マイコトキシン類のLPS誘導性TLR4シグナルに対する抑制作用、第33回日本分子生物学会年会・第83回日本生化学会大会（2010, 12）。

4. 木下麻緒、小西良子、鎌田洋一、薬袋裕二、石澤聡美、杉山圭一：HepG2細胞レドックス状態に対するトリコテセン系カビ毒の影響、日本農芸化学会大会講演要旨集（2011・京都）（2011, 3）。

5. 杉山圭一、木下麻緒、鎌田洋一、薬袋裕二、小西良子：HepG2細胞におけるデオキシニバレノールの抗酸化作用に関する研究、第84回日本生化学会大会（2011, 9）。

6. Sugiyama, K., Kinoshita, M., Minai, Y., Muroi, M.,

Tanamoto, K. and Sugita-Konishi, Y:
Trichothecene mycotoxins inhibit
MyD88-independent pathways of Toll-like
receptors, 9th Joint Meeting of ICS-ISICR, 39
(2011, 10).

7. 杉山圭一、木下麻緒、薬袋裕二、鎌田洋一、谷
史人、小西良子：ヒト肝臓癌由来細胞株 HepG2
の細胞内レドックスにおよぼすデオキシニバ
レノールの影響、日本マイコトキシン学会第
70 回学術講演会講演要旨集 31 (2012, 1) .
8. 木下麻緒、小西良子、薬袋裕二、杉山圭一：TLR
シグナルに対するデオキシニバレノールの阻
害メカニズムの解明、日本農芸化学会大会講演
要旨集 (2012・京都) (2012, 3) .

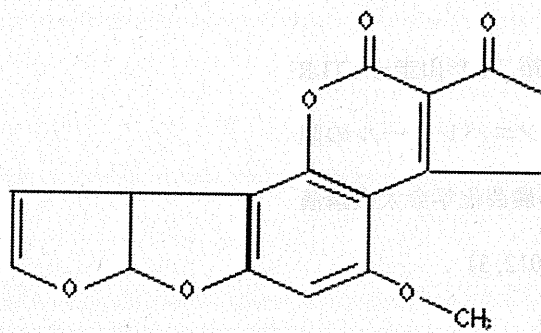


Fig. 1 Aflatoxin M1

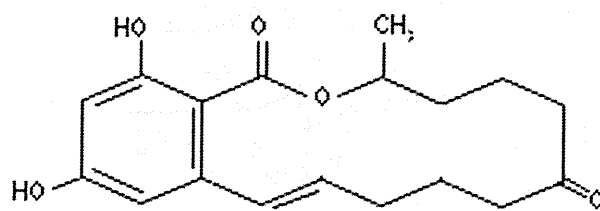


Fig. 2 Zearalenone

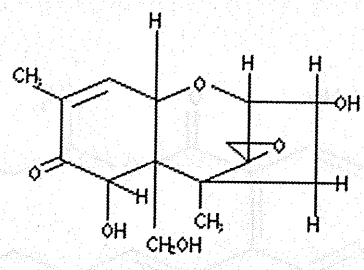


Fig. 3 Deoxynivalenol

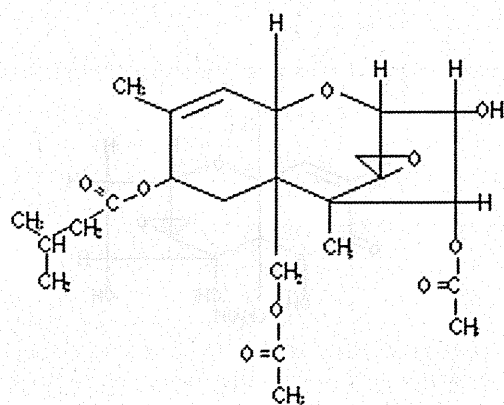


Fig. 5 T-2 toxin

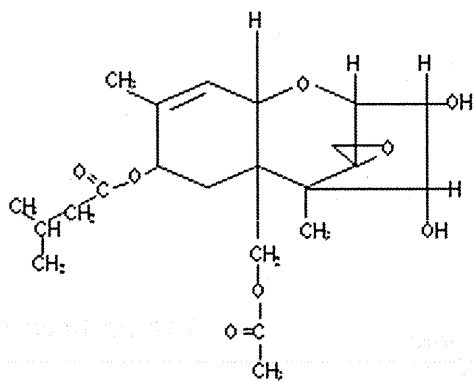
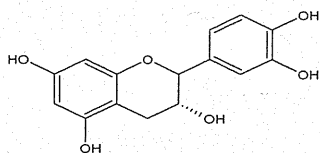
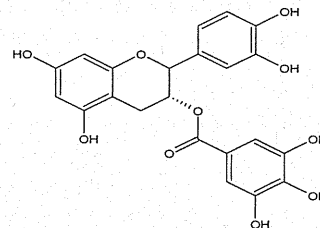


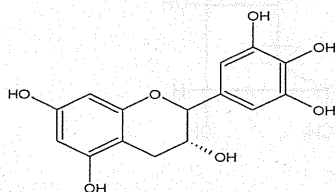
Fig. 6 HT-2 toxin



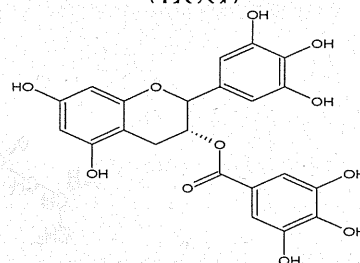
(-)-Epicatechin
(EC)



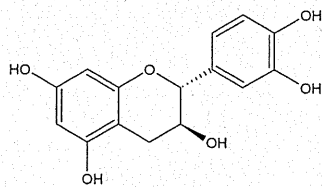
(-)-Epicatechin-3-gallate
(ECG)



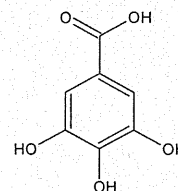
(-)-Epigallocatechin
(EGC)



(-)-Epigallocatechin-3-gallate
(EGCG)



(+)-Catechin



Gallic acid
(GA)

Fig. 7 Catechins and gallic acid

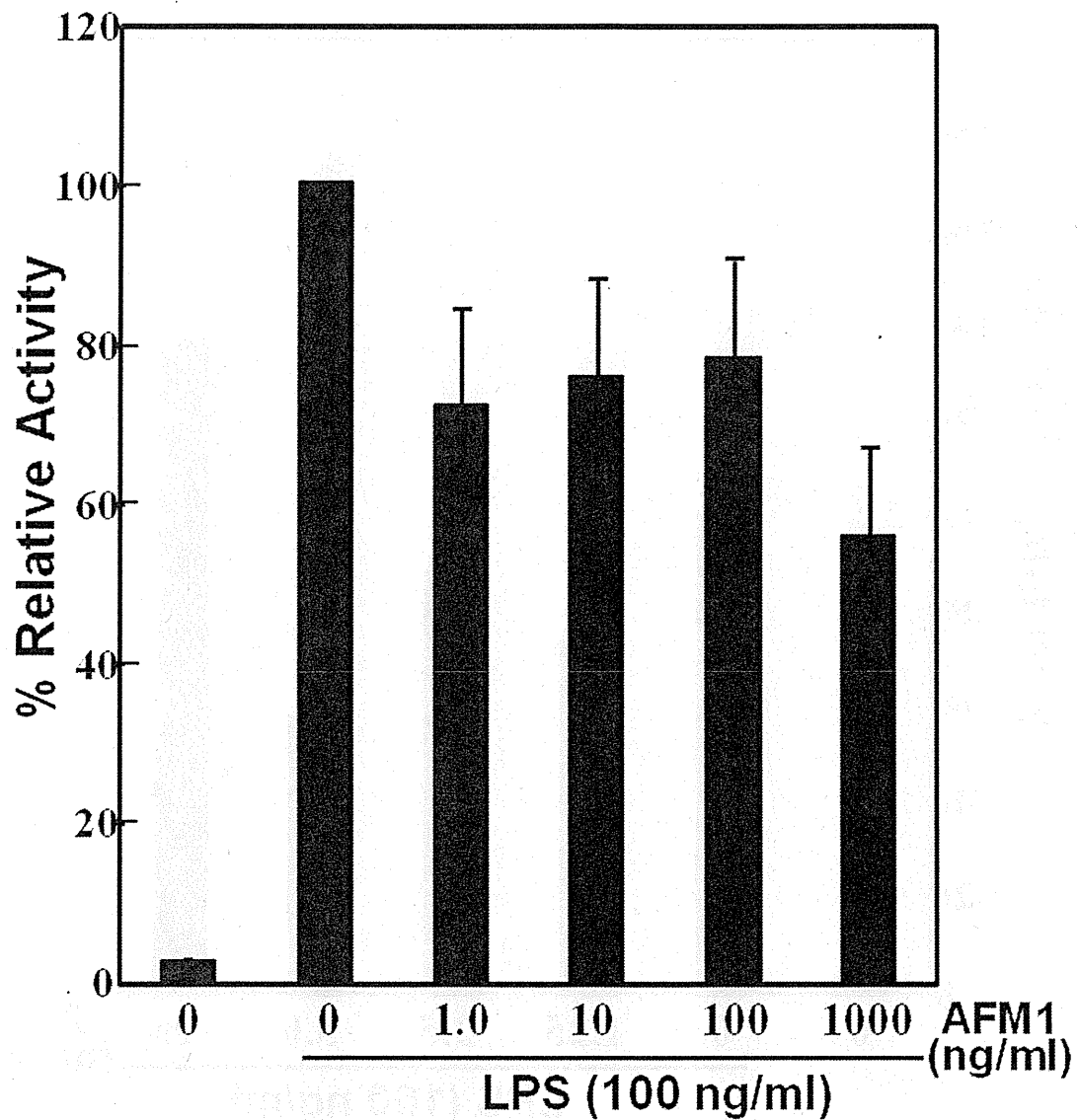


Fig. 8 Effects of AFM1 on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with AFM1 (1.0-1,000 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

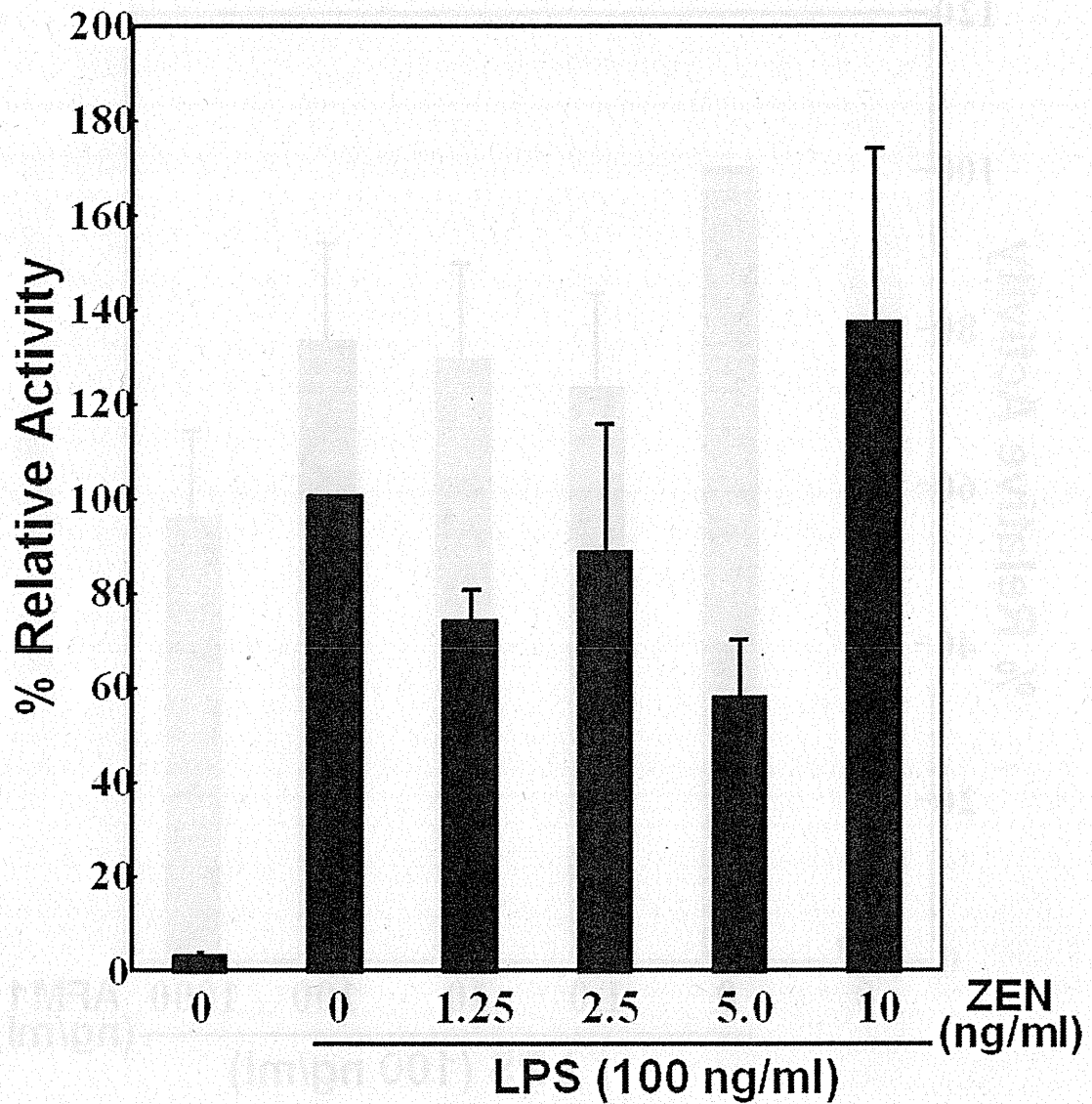


Fig. 9 Effects of ZEN on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with ZEN (1.25-10 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

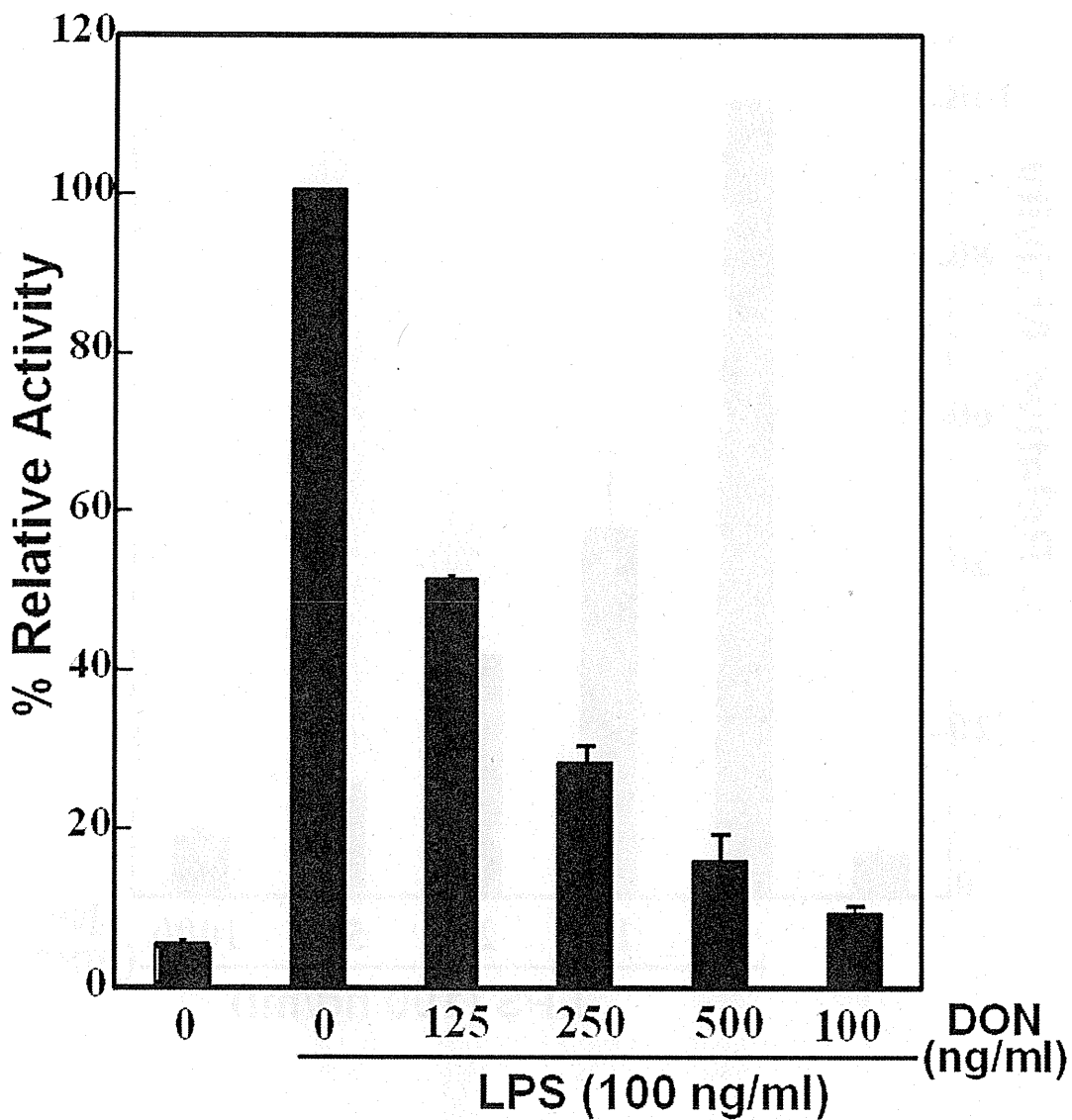


Fig. 10 Effects of DON on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with DON (125-1,000 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

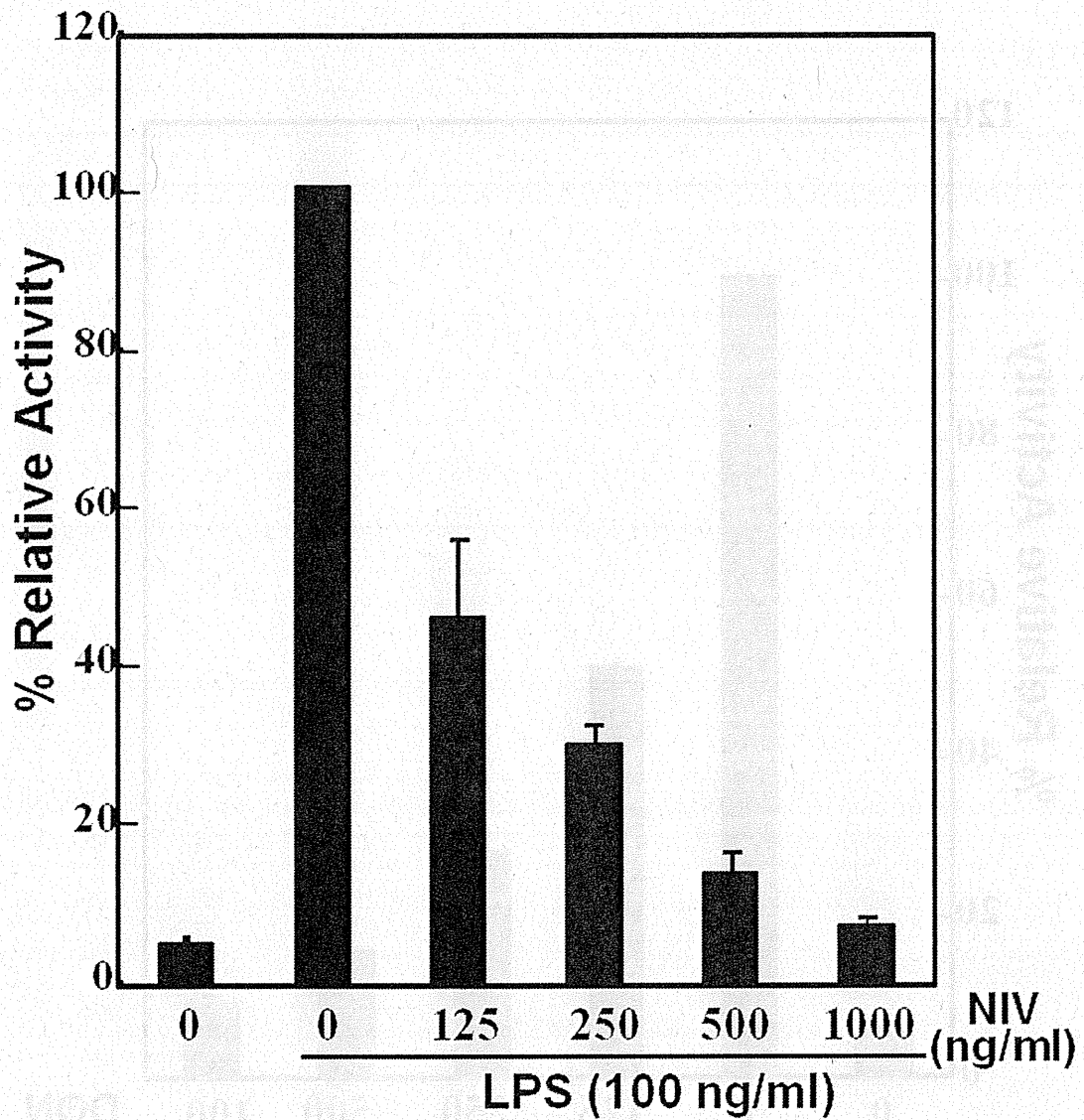


Fig. 11 Effects of NIV on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with NIV (125-1,000 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

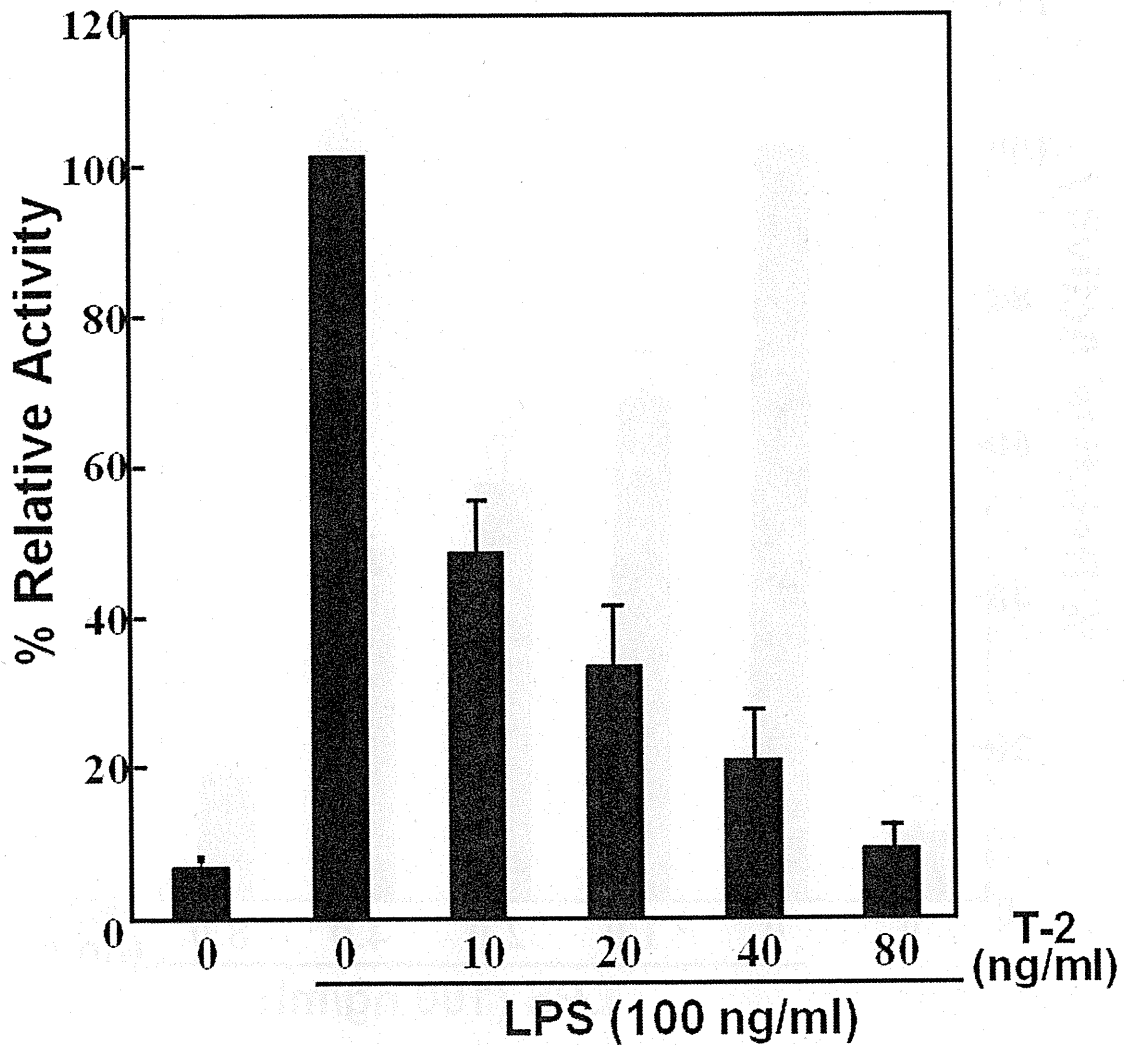


Fig. 12 Effects of T-2 on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with T-2 (10-80 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

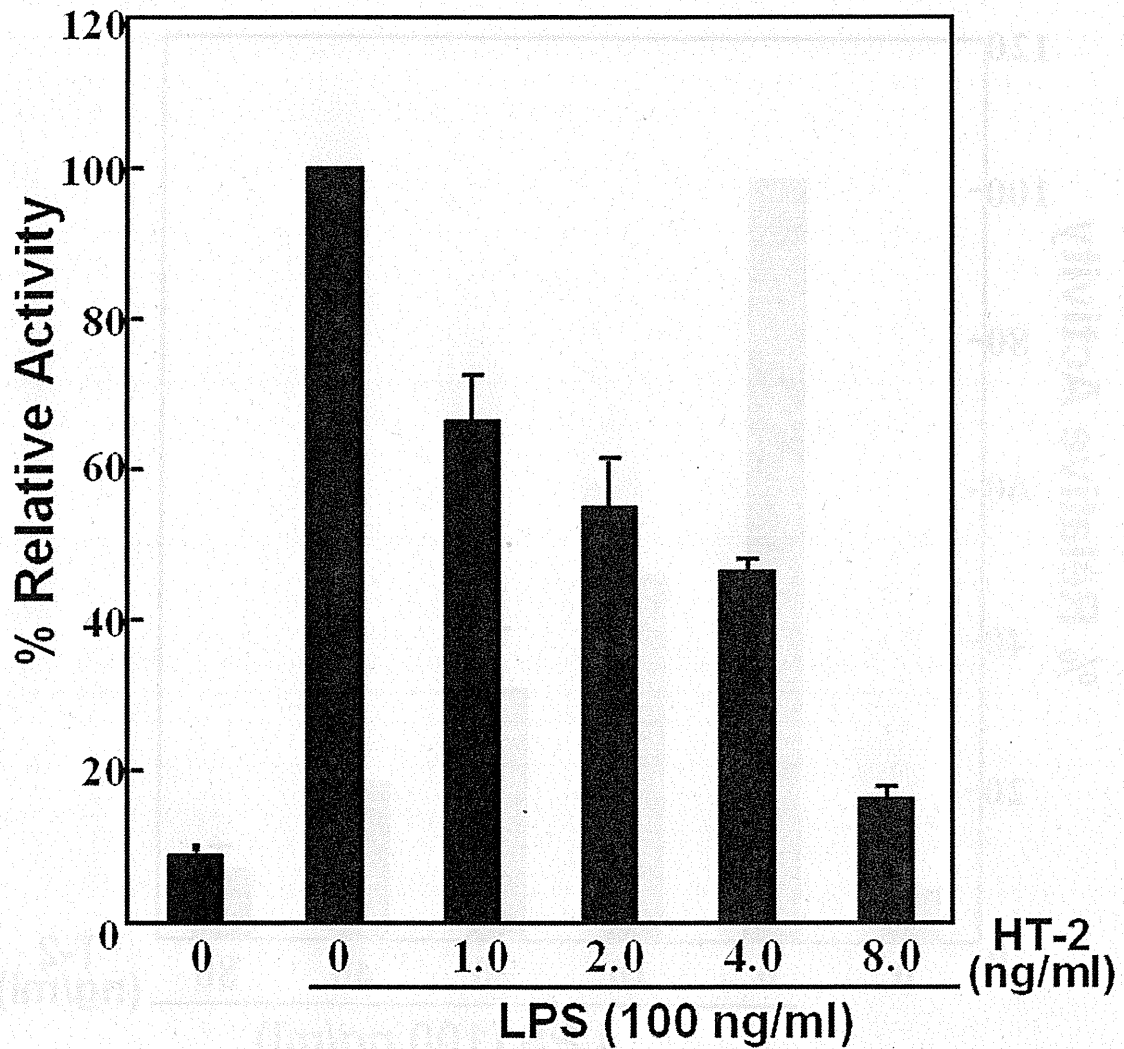


Fig. 13 Effects of HT-2 on LPS-induced NF- κ B dependent reporter activity in differentiated THP-1 cells.

Differentiated THP-1 cells were stimulated with HT-2 (1.0-8.0 ng/ml) and LPS (100 ng/ml) for 6 h and luciferase activity was then measured. The reporter activity in response to LPS alone is expressed as 100%. Values are means \pm SEM from three independent experiments.

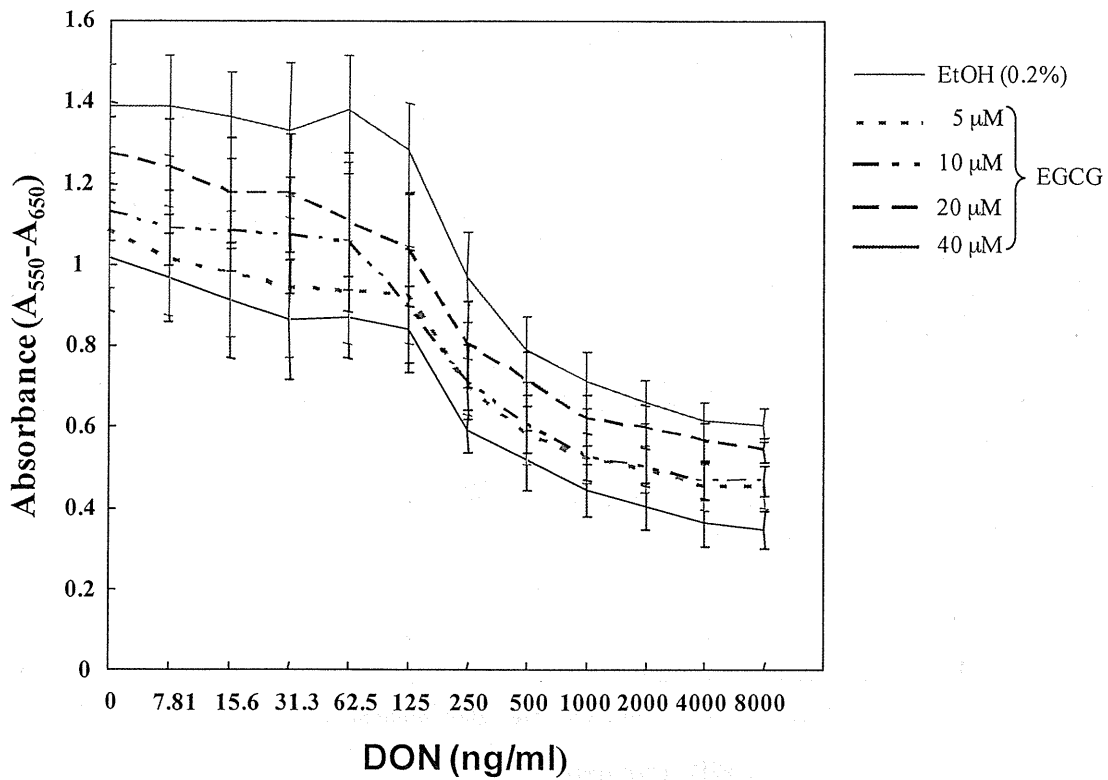


Fig. 14. Protective effect of Epigallocatechin-3-gallate on DON-induced acute damage to RAW264 cells. RAW264 cells were cultured in DMEM containing Epigallocatechin-3-gallate (5 - 40 μM) in the presence of DON for 24 h. The results are expressed as mean value of absorbance that subtracted absorbance of 650 nm from absorbance of 550 nm. These are based on the RAW264 cells were cultured with EtOH (0.2%). Results are shown as means \pm S.D. of three independent measurements.

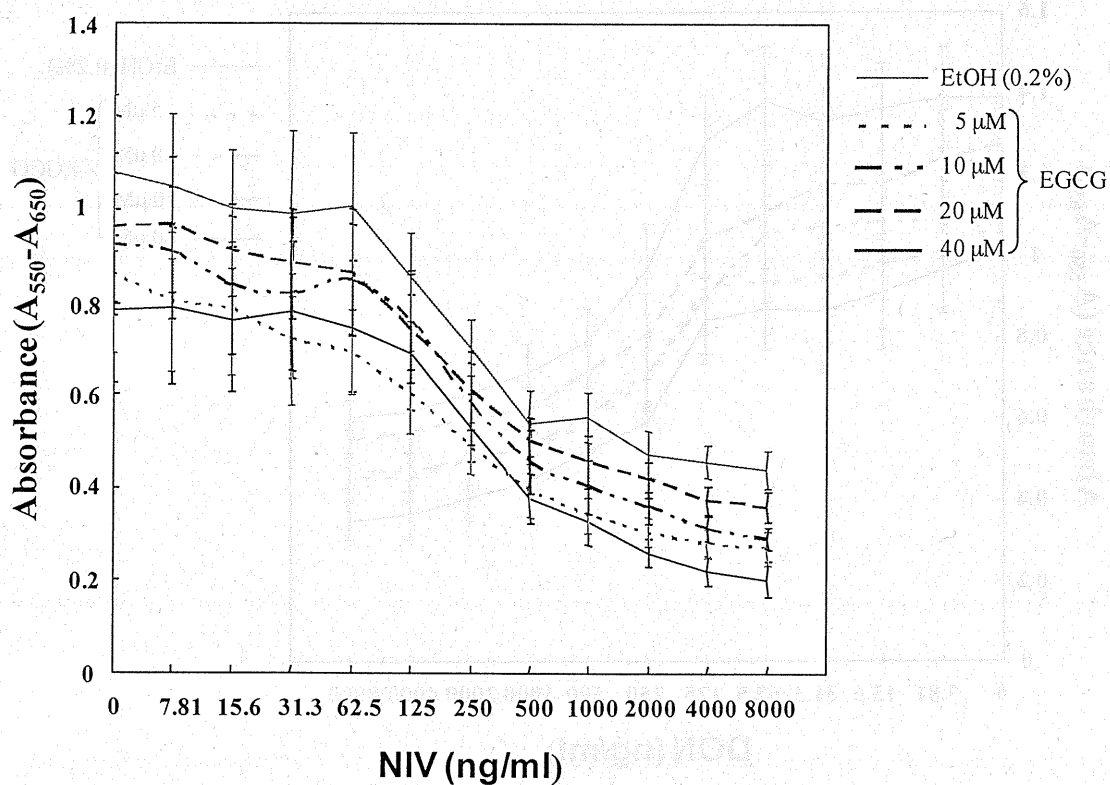


Fig.15. Protective effect of Epigallocatechin-3-gallate on NIV-induced acute damage to RAW264 cells. RAW264 cells were cultured in DMEM containing Epigallocatechin-3-gallate (5 - 40 μ M) in the presence of NIV for 24 h. The results are expressed as mean value of absorbance that subtracted absorbance of 650 nm from absorbance of 550 nm. These are based on the RAW264 cells were cultured with EtOH (0.2%). Results are shown as means \pm S.D. of three independent measurements.

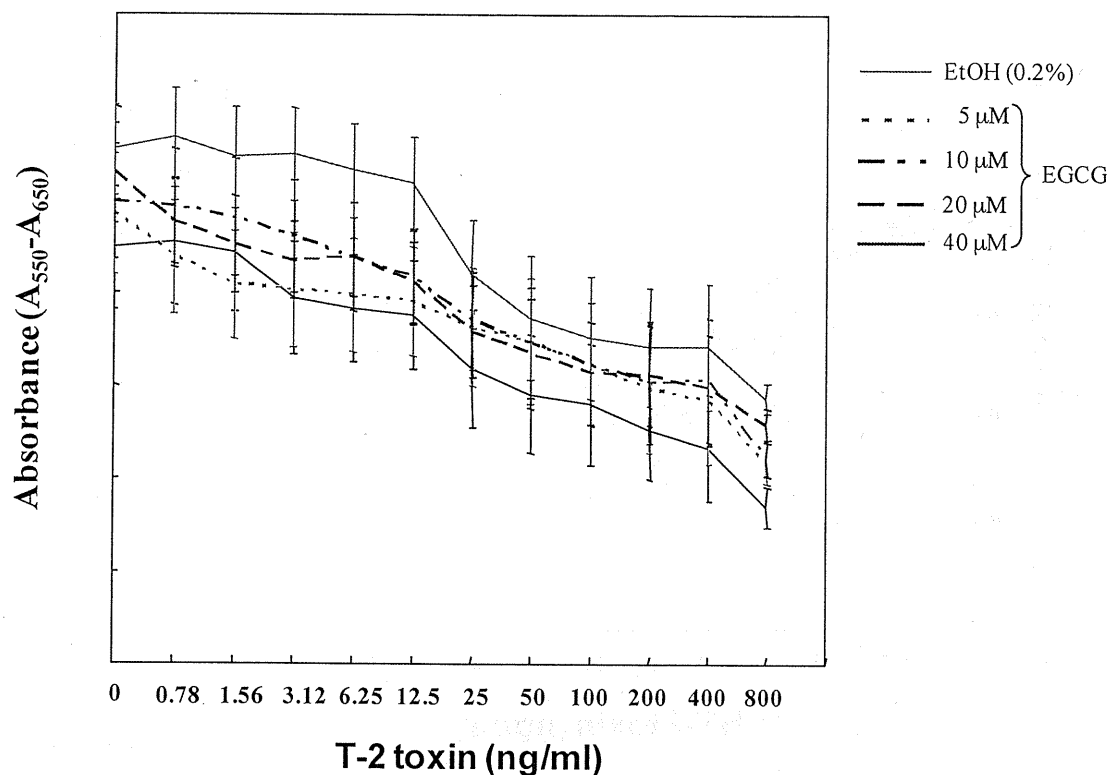


Fig. 16. Protective effect of Epigallocatechin-3-gallate on T-2 toxin-induced acute damage to RAW264 cells. RAW264 cells were cultured in DMEM containing Epigallocatechin-3-gallate (5 - 40 μ M) in the presence of T-2 toxin for 24 h. The results are expressed as mean value of absorbance that subtracted absorbance of 650 nm from absorbance of 550 nm. These are based on the RAW264 cells were cultured with EtOH (0.2%). Results are shown as means \pm S.D. of three independent measurements.

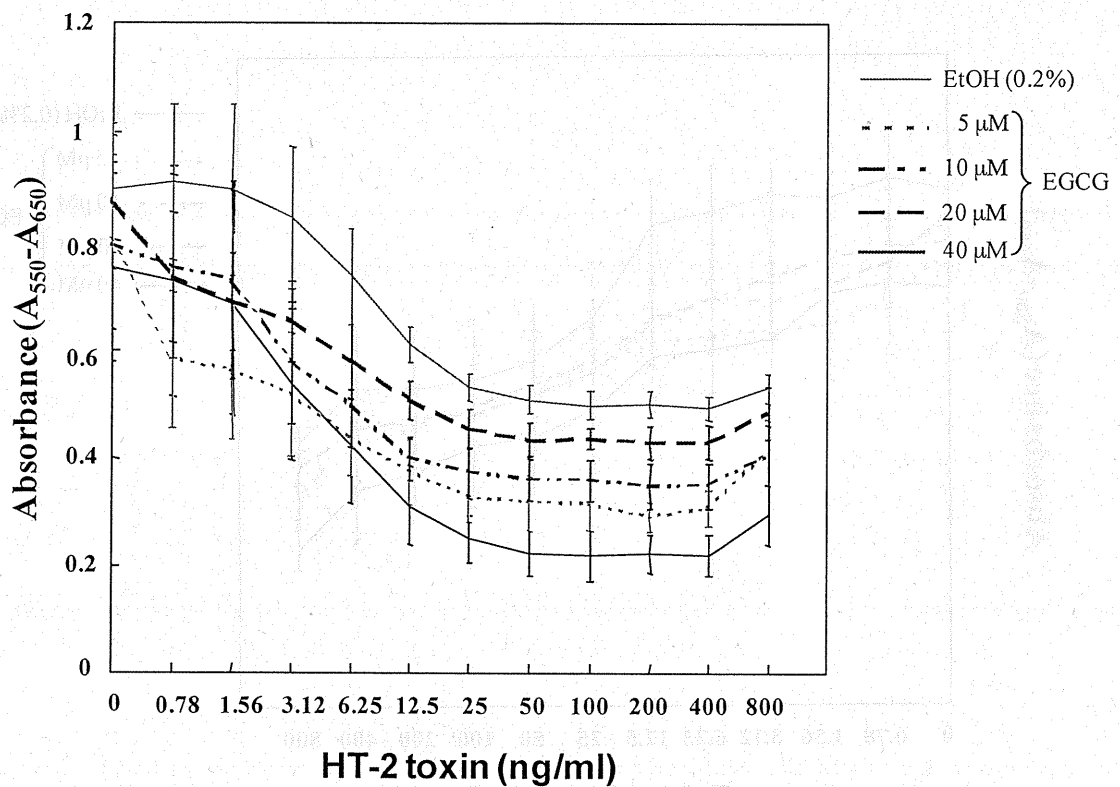


Fig.17. Protective effect of Epigallocatechin-3-gallate on HT-2 toxin-induced acute damage to RAW264 cells. RAW264 cells were cultured in DMEM containing Epigallocatechin-3-gallate (5 - 40 μ M) in the presence of HT-2 toxin for 24 h. The results are expressed as mean value of absorbance that subtracted absorbance of 650 nm from absorbance of 550 nm. These are based on the RAW264 cells were cultured with EtOH (0.2%). Results are shown as means \pm S.D. of three independent measurements.