

Gossypol

Description

Gossypol is a polyphenolic compound ($C_{30}H_{30}O_8$) (Tacon, 1997). It causes problems to the reproductive system by affecting the reproductive tissues or pituitary and gonadal hormone secretion (Francis *et al.*, 2001). Gossypol can also bind with the reactive amino group of lysine during heat processing (Tacon, 1997). Impaired protein digestibility, reduced growth, and toxicity signs in organs (kidney, liver, and spleen) have been reported in fish (Guillaume *et al.*, 1999). Gossypol is also a strong carcinogen when fed to fish in combination with aflatoxin. It is recommended to keep levels of free-gossypol below 0.01% within the diet (Tacon, 1997).

Occurrences

Gossypol is present in the pigment glands of plants of the genus *Gossypium* (e.g., cottonseed) (Francis *et al.*, 2001).

Treatment

Free gossypol pigments are bound to proteins (with the reactive epsilon amino group of lysine) when processing the cottonseed with heat. The level of free-gossypol can thus be reduced by 50-99% although the final protein bioavailability is consequently reduced (Tacon, 1997). Recently, cottonseed varieties free of pigment glands have been selected (Guillaume *et al.*, 1999).