

Role of Naturally Occurring Anti-Inflammatory Steroid Analogues in the Prevention of Neurodegeneration

Didem Şöhretoğlu^a, Randolph Arroo^b

^a Hacettepe University, Faculty of Pharmacy, Department of Pharmacognosy, Sıhhiye, 06100, Ankara, Turkey; ^b De Montfort University, Leicester School of Pharmacy, The Gateway, Leicester, LE1 9BH, United Kingdom

The immune response contributes to human homeostasis by preparing the body to fight off infections and help the healing process in case harm has occurred. Inflammation is an important part of the immune response and is a tightly regulated process.

Glucocorticoids (**1**) are a key part of the feedback mechanism in the immune system, and tune immune activity (inflammation) down. Failing of this feedback mechanism results in chronic inflammation, which is at the basis of a variety of degenerative diseases. A wide range of natural products that have anti-inflammatory properties has been identified. These compounds are thought to contribute to the prevention of neurodegenerative diseases through alleviation of chronic inflammation. The natural products may act as analogues of the steroid hormones that normally regulate the human immune response. The compounds under consideration are triterpenes (**2**), phytosterols (**3**), and phytoestrogens - notably flavones (**4**) and isoflavones (**5**) - which are known to interact with sterol receptors in the human body, and are likely to directly interfere with the cell signalling pathways that lie at the base of the inflammation process.

