

The rocking coinage for Chemistry is Chemist+Try! So try & try & try until you reach to your target to become a real & successful chemist"! Chemistry always have four corners to build a milestone: how, when, where and why. The last three letters (TRY) is the mystery in the history of chemistry. The devotion of true chemist towards the field of science, technology, education and industry create an inspiration to the budding fellows. The methodology of a chemist for implementation of basic chemistry into in-house (domestic) as well as out-house (profession) makes a milestone among the entire chemistry professionals. Innermost thought of this book has been implemented as outermost thinking implementation of chemical or biological design into book both vice-versa are totally dependent of linguistics as well as catenation of 118 elements of periodic table. Chemistry is a playground of functional groups which encourages the overlapping of chemical molecules in biochemical pathways followed by all branches of chemical sciences [biochemistry, physical chemistry, medicinal chemistry, analytical chemistry, physical chemistry, inorganic chemistry, organic chemistry, green chemistry etc.



Arpita Biswas
Dhrubo Jyoti Sen
Dhananoy Saha

PARADIGM OF CHEMICAL SCIENCE PROVES OVER STALWARTNESS

biochemistry, physical chemistry, medicinal
chemistry, analytical chemistry, physical chemistry,
green chemistry



Three authors of this book are the stalwarts in their domain. Arpita Biswas in Pharmaceutical Chemistry, Dr Dhananjoy Saha in Biomedical Science and Prof Dr Dhrubo Jyoti Sen in Medicinal Chemistry. The combined efforts of three masterminds proved the goal to target the milestone of success. All three have strong background in pharmaceutical science



Biswas, Sen, Saha



Imprint

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CHEMISTRY AND PATHOPHYSIOLOGY OF 2-PHENYL-4H-CHROMEN-4-ONE DERIVATIVES AS HOLISTIC FLORA IN THE FORM OF GLYCOSIDIC AGLYCONE

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Abstract: Flavones are flavonoids characterized by a nonsaturated 3-C chain and have a double bond between C-2 and C-3, like flavonols, with which they differ by the absence of hydroxyl in the 3-position. It appears that this simple difference in structure between flavones and flavonols has very important consequences in the biogenesis, physiological, and pharmacological roles, and the phylogenetic and chemotaxonomic signification of these compounds. Flavones are widely distributed among the higher plants in the form of aglycones or glycosides. Flavonols are molecules present in most plants that are an important component of some human diets. Epidemiological evidence shows the beneficial effects of these molecules in cardiovascular and neuropathological diseases. Experimental evidence in-vitro and in-vivo has confirmed the neuroprotective effects in neurons in culture against oxidative insults and in models of focal ischemia and experimental parkinsonism. Nevertheless, the active concentration range in-vitro is very narrow, and effects on brain pathology have been shown mostly after chronic administration. Although the preventive effects of flavones and flavonols in brain pathology could be considered mostly substantiated, the positive neuroprotective activity after acute administration still deserves more research.

Keywords: Benzopyran, Chromen, Flavones, Flavonoids, Polyphenols

Introduction: Flavones (flavus = yellow), are a class of flavonoids based on the backbone of 2-phenylchromen-4-one (2-phenyl-1-benzopyran-4-one). Flavones are mainly found in spices and red or purple plant foods. The estimated daily intake of flavones is about 2 mg per day. Flavones have proven physiological effects in the human body and have sufficient antioxidant food value. Following ingestion and metabolism, flavones, other polyphenols, and their metabolites are absorbed poorly in body organs and are rapidly excreted in the urine, indicating mechanisms influencing their presumed absence of metabolic roles in the body.^[1-5]

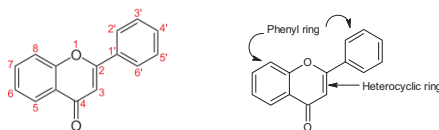


Figure-1: Skeleton of flavone

Flavones from natural sources:

- 1. Primuletin** [5-Hydroxy-2-phenyl-4H-chromen-4-one]
- 2. Chrysin** [5,7-Dihydroxy-2-phenyl-4H-chromen-4-one] is a flavone found in honey, propolis, the passion flowers, *Passiflora caerulea* and *Passiflora incarnata*, and in *Oroxylum indicum*. It is extracted from various plants, such as the blue passion flower (*Passiflora caerulea*). Following oral intake by humans, chrysin has low bioavailability and rapid excretion. It is under basic research to evaluate its safety and potential biological effects.
- 3. Techtochrysin** [5-hydroxy-7-methoxy-2-phenylchromen-4-one] is a chemical compound. It is an O-methylated flavone, a flavonoid isolated from *Prunus cerasus*, the sour cherry, a plant native to much of Europe and southwest Asia.

