Amazing Aspirin

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Credit of Aspirin invention goes to a German chemist, Felix Hoffmann at Bayer (1897), but the story of aspirin is ancient and begins with willow tree (*Salix alba*). The bark of this tree was used to cure agues and rheumatism in annals by Hippocrates, Dioscorides, and Parcelsus.

The shortage of Quinine and dangers of Opium addiction brought renewed interest in willow bark. Johann Buchner, a Professor of Pharmacy at the University of Munich, isolated crystals of active ingredient of Willow bark, a bitter glycoside, which he named SALICIN (1828). German chemist Karl Lowig, oxidised it to spirasaur (salicylic acid) in 1835, and then promoted as an antiseptic and food preservative. French chemist, Charles Gerhardt succeeded in preparing salicylic-acetic-anhydride (acetyl salicylic acid) from salicylic acid (1853). The product worked, but he had no desire to market it and abandoned his discovery.

Bayer, earlier a dye manufacturing company in Germany, had concentrated on the more lucrative production of pharmaceuticals. Felix Hoffmann, a young chemist working for them "rediscovered" Gerhardt’s formula and obtained acetylsalicylic acid (1897), by using a simplified procedure, substituting acetic anhydride for acetyl chloride. He tried it on his father who was suffering from arthritic pain, with good results. Bayer introduced the drug in clinical medicine under the trade name ASPIRIN* (acetylated and spir from the plant genus Spiraea), in 1899 and patented it. After Germany lost WW-I, Bayer was forced to give up trade marks of Aspirin during the Treaty of Versailles (1919).

Dr. Laurence Craven, a Californian doctor noted that aspirin had reduced the risk of heart attacks in his patients (1956). The explanation for such diverse and seemingly disconnected therapeutic properties of aspirin was revealed in 1970s by the discovery of chemical mediators-Prostanoids. British scientist Professor John Vane discovered that aspirin blocked cyclooxygenase (COX) a key enzyme needed for the production of prostaglandins and thromboxanes involved in many body processes including pain, tissue injury and platelet aggregation. He won the Nobel Prize in Medicine for his work in 1982.

Aspirin remains a subject of ongoing research, with its potential being tried in prevention of colonic cancer, foetal growth retardation, pre-eclampsia and senile dementia.

Dr. VR Joshi, then my chief at Nair Hospital (1976), called it "lakh dukhonki ek dava". How true indeed.

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