

Prospecting for drugs in ancient texts

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The mass screening of plants in the search for new drugs is vastly expensive and inefficient. It would be cheaper and perhaps more productive to re-examine plant remedies described in ancient and mediaeval texts.

The plants of rainforests are rapidly being destroyed and with them the potential for discovering new drugs based on phytochemicals¹. The huge diversity of species leads to the expectation that many

other compounds are under investigation specifically because of their uses in folk medicine. In Ghana, asthma is treated with a medicinal herb that has recently been shown to contain a compound (dehydrosoyasaponin I, a triterpenoid glycoside) that is the most potent known potassium-channel opener; this may explain the antispasmodic and spasmolytic effects of the plant, which have recently been confirmed *in vitro* and *in vivo*⁴. Traditional Chinese medicinal plants are being investigated as a treatment for eczema⁵, and in the Philippines a tea made from the leaves of *Carmona retusa* is considered to have many medicinal properties; a compound in the leaf is strongly antimutagenic⁶.

There is an extremely large and readily accessible body of traditional medicine, describing a wide range of plants and other substances, that has not recently been investigated systematically. I refer to premodern western medicine, embodied in the writings of ancient Greece and Rome through the Middle Ages and the Renaissance. Many of the reported remedies have been dropped, of course, because they were preposterous⁷. The scientific revolution which began in the mid-sixteenth century dismissed Aristotelian-Galenic medicine as being fraught with errors and as having a stifling influence. This attitude has persisted, causing us to regard ancient and mediaeval medicine as an historical curiosity rather than a source of potential therapies. Images of blood-letting, obnoxious potions and crude, dirty surgery come to mind. But the Greek and Latin herbaria and materia medica do contain, in some cases, descriptions of plants of pharmacological effectiveness whose properties have been forgotten.

The plant called silphion, in the genus *Ferula*, was of great economic importance in Greek and Roman times⁸. It had to be gathered and traded; attempts to cultivate it failed, according to Hippocrates. In the second century AD, the gynaecologist Soranus recommended oral administration of silphion sap as a contraceptive; modern experiments show that extracts

from some of silphion's surviving relatives inhibit conception or prevent implantation of a fertilized egg in rodents⁸.

Pennyroyal, an aromatic mint plant (*Mentha pulegium* L.), was considered to be an abortifacient in ancient and mediaeval times. Quintus Serenus wrote in the second century that a fetus less than one month in gestation could be aborted using an infusion of the plant. The active ingredient is pulegone, and recent studies confirm that this chemical induces abortion in animals and people⁹⁻¹² and show that pennyroyal tea would be preferable for this purpose to the purified oil, because the high concentration of pulegone in the oil would be toxic^{13,14}.

Perhaps the time has come to make a relatively small investment in the systematic re-examination of therapies mentioned in Greek and Latin medical texts, through a dialogue between pharmacologists on the one hand, and classicists, mediaevalists and historians of medicine on the other. Such cooperation, which would link ancient texts with modern standards of testing, might result in a useful and inexpensive source of potentially therapeutic compounds. □

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ACKNOWLEDGEMENT. I thank John Riddle for much useful advice.

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Dioscorides receives the mandrake root from Euresis, goddess of discovery (AD 512).

therapeutically worthwhile compounds remain undiscovered; but to screen innumerable plants and their compounds in a systematic way is vastly expensive. Random screening is not an effective approach: the National Cancer Institute failed to find a compound with clinical anticancer activity among 114,000 plant extracts from 35,000 species².

The use of folk beliefs and traditional healers as a short-cut to the discovery and isolation of pharmacologically active compounds has been a productive approach. About a quarter of all prescriptions written in the United States are for drugs that contain compounds originally identified from plants², and virtually all currently used drugs derived from plants, including reserpine, quinine, digoxin, digitoxin, tubocurarine, morphine and codeine, were discovered through scientific investigation of folklore claims³. European Renaissance folklore included knowledge of deadly nightshade (*Atropa belladonna*) and mandrake (*Mandragora* species), among many others. Even today, many

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Deadly nightshade (*Atropa belladonna*).

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