

This work shows how two expert systems, LSD and SISTEMAT, can be used together to solve structure elucidation problems that were selected from recent literature articles. The LSD system is a structure generator that mainly relies on homo- and heteronuclear 2D NMR data. It lacks the knowledge of chemical shift values and of natural product chemistry. Conversely, the SISTEMAT data base contains about 20000 natural compounds and refers to both their  $^{13}\text{C}$  NMR chemical shifts and their botanical origin. When exploited by dedicated computer programs it yields structural constraints such as skeletal types and ring systems. The botanical and spectroscopic data in SISTEMAT proved to be very complementary in the constraints extraction process. Several application examples of the proposed methodology are described in detail.