What is Odoratin?

Keyphrases □ Odoratin—recommended assignment of name only to isolate from *Cedrela odorata* □ Undecanortriterpenoids—odoratin, recommended assignment of name only to isolate from *Cedrela odorata* □ *Cedrela odorata*—recommended assignment of odoratin as name for isolate from *Cedrela odorata* only

To the Editor:

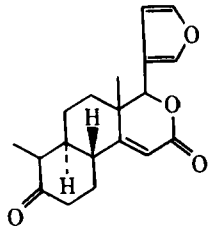
In 1966, Chan *et al.* (1, 2) assigned the name odoratin (I) to a novel undecanortriterpenoid isolated from the West Indian cedar *Cedrela odorata* L. (Meliaceae). To our knowledge, this was the first time that the name odoratin was assigned to any plant principle.

Two years later, Ortega *et al.* (3) isolated a novel pseudoguaianolide (II) from the Mexican Compositae *Hymenoxys odorata* DC. and also assigned it the trivial name odoratin.

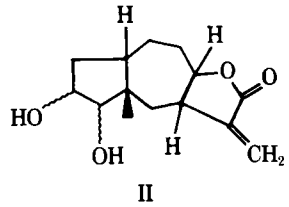
In 1973, Bose *et al.* (4, 5) reported the isolation of a novel chalcone from *Eupatorium odoratum* L. (Compositae), which was shown to be 6′-hydroxy-4,2′,3′,4′-tetramethoxychalcone (III), and confused the literature further by naming it odoratin.

Finally, Galina and Gottlieb (6) and Hayashi and Thomson (7) simultaneously reported the isolation of a novel isoflavone from *Pterodon apparicioi* Pedersoli (Leguminosae) and *Dipteryx odorata* Willd. (Leguminosae), respectively. This compound also was assigned (7) the name odoratin (IV) and subsequently was synthesized (8).

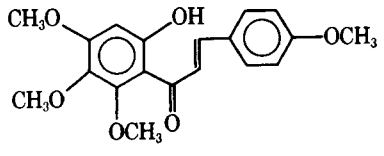
In spite of the repetitive assignments of the trivial name odoratin to four classes of natural products over an 8-year period, odoratin recently has been used again to designate the chalcone (III) isolated from *Eupatorium odoratum* (9) and the pseudoguaianolide (II) isolated from *Baileya pauciradiata* Harv. and Gray (Compositae) (10).



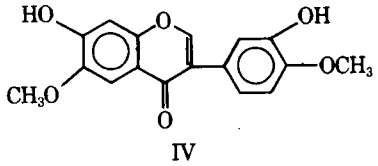
I



II



III



IV

Because of the confusion created by this failure to check the literature prior to the assignment of a trivial name, we suggest that the name odoratin be retained for the first isolate, the undecanortriterpenoid represented by I. Structures II–IV should be referred to by the systematic names 3,4,8β-trihydroxyambros-11(13)-en-12-oic acid γ-lactone (II), 6′-hydroxy-4,2′,3′,4′-tetramethoxychalcone (III), and 7,3′-dihydroxy-6,4′-dimethoxyisoflavone (IV).

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Monitoring *In Vivo* Disintegration Time of Tablets by External Scintigraphy

Keyphrases □ Disintegration—monitoring of *in vivo* tablet disintegration time by external scintigraphy □ Scintigraphy, external—monitoring of *in vivo* tablet disintegration time □ Tablets—disintegration *in vivo*, monitoring by external scintigraphy

To the Editor:

Several investigators developed techniques for the determination of *in vivo* disintegration times of pharmaceutical solid formulations. One technique had the tablet attached at the end of a string. The tablet was administered orally; at predetermined time intervals, the tablet was pulled back, and the degree of disintegration was observed (1). In another case, the tablet was recovered by inducing vomiting (1). Other techniques involved direct visualization of the tablet in the stomach by means of a gastroscope or a fiberscope (1, 2) or by using roentgenography or fluoroscopy with or without a radiopaque material

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in the tablet formulation (1, 3–7). Casey *et al.* (8) used technetium 99m to label capsules and a γ-camera to monitor the *in vivo* disintegration of the formulation. Alpsten *et al.* (9) labeled capsules with chromium 51 and monitored the *in vivo* disintegration with a shielded scintillation crystal probe.

The major disadvantages of these techniques were that they were invasive, causing discomfort to the animal model or to the human subject; they did not allow continuous observation of the solid formulation in the stomach; they exposed the subject to high doses of X-ray radiation; and they always tampered considerably with the physical integrity of the tablet or capsule formulation.

This communication presents a noninvasive method for monitoring the *in vivo* disintegration time of tablets. This method involves external scintigraphy for monitoring the *in vivo* disintegration times of tablets (10), combined with a new method for labeling the tablet with a short-lived radionuclide. This labeling process interferes to a lesser degree with the physical integrity of the formulation.

In a typical experiment, the tablet[1] was labeled with iodine 131 by exposing it to vapors of iodine 131 (5 mCi) in carbon tetrachloride[2] for 5 hr in a glass chamber. The $^{131}I_2$ was adsorbed onto the tablet surface, and some diffused into the tablet. The extent of the penetration of the $^{131}I_2$ into the tablet was examined by autoradiography. Slices ~2 mm thick were taken from different labeled tablets at different distances from the center of the tablet using a microtome[3]. Due to friability of the tablet, it was impossible to obtain thinner slices or more than one slice per tablet. Each slice was placed on medical X-ray film[4] for ~1 hr. The *in vitro* disintegration time of the labeled tablets was found to be within the range of the nonlabeled tablets.

The labeled tablet (~100,000 cpm) was administered orally to an anesthetized[5] animal with a pill gun. The animal was placed in a supine position on a table, and the abdomen then was positioned under the collimated detector of a multicrystal scintillation camera[6]. Data were accumulated for up to 30 min. During that period, scintiphotographs of the abdominal area were taken (Figs. 1A–1D). In a second animal, data were accumulated for 50 min (Figs. 1E–1H). Figure 1A shows the scintigraphic image of the tablet outside of the stomach of the dog, while Figs. 1B–1D show the tablet inside the dog at various times. The onset of the tablet disintegration is shown in Fig. 1D, while a better picture of the disintegration is given in Figs. 1E–1H, taken from another dog.

This method for measuring the disintegration time of tablets *in vivo* has good potential in the assessment of tablet formulations for the following reasons. The labeling of the tablet is achieved by exposing the tablet to vapors of $^{131}I_2$ in carbon tetrachloride. Iodine 131 is adsorbed onto the tablet surface and, to a lesser extent, is diffused into the tablet. This labeling process interferes the least, compared to other techniques, with the physical integrity of the formulation. The technique is based on external scintigraphy and does not require sacrifice of the experimental animal. If the scintillation camera is coupled with a video recording device for replay capability and a computer for image processing, then it is possible to follow the disintegration process minute by minute and to determine accurately the onset and end of the disintegration process within the animal's stomach.

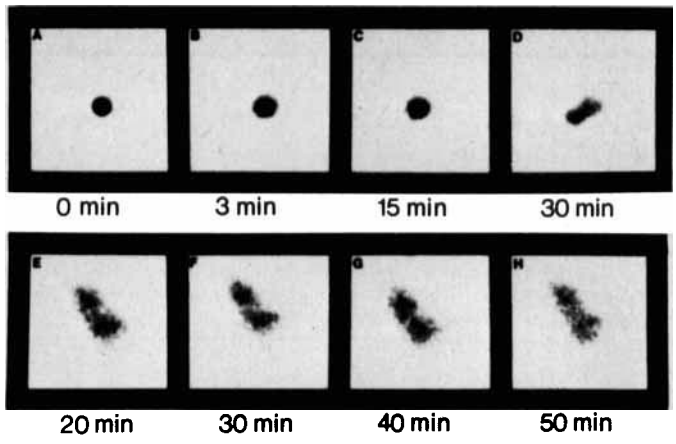

Figure 1—*Sequence scintiphotographs of a tablet ingested by a dog. Key: A–D, Dog 1, and E–H, Dog 2.*

Further research is in progress to assess the effect of the labeling process on the physical integrity of the formulation and the effectiveness of this process with respect to the penetrability and uniformity of diffusion of the label into various types of tablets.

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[1] Vitamin C (250 mg/tablet), S. S. Kresge Co., Troy, Mich.
[2] ICN, Chemical and Radioisotope Division, Irvine, Calif.
[3] A-20 microtome, Scientific Instruments Division, American Optical Inc., Buffalo, N.Y.
[4] RP/R-14, Eastman Kodak Co., Rochester, N.Y.
[5] Rompun (xylazine), 1.1 mg/kg, Bagvet, Division of Cutter Laboratories, Shawnee, Kans.
[6] Nuclear of Chicago, Pho/Gamma HP, Searle Diagnostics, Des Plaines, Ill.