

54 C.C.P.A. 1524, *; 379 F.2d 973, **;
1967 CCPA LEXIS 279, ***; 154 U.S.P.Q. (BNA) 92

LEXSEE 154 USPQ 92

IN RE JEAN MAURICE GAZAVE

No. 7684

United States Court of Customs and Patent Appeals

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Oral argument November 9, 1966

June 22, 1967

PRIOR HISTORY: [*1]**

APPEAL from Patent Office, Serial No. 83,159

"lack of proof of therapeutic utility."

DISPOSITION:

Reversed.

n1 Appearing in Serial No. 83,159, filed January 17, 1961, entitled "Therapeutic Compositions Comprising Isoflavone Compounds."

LexisNexis(R) Headnotes

The application discloses therapeutic compositions containing certain isoflavone compounds of the formula
[Graphic omitted. See illustration in original.]

COUNSEL:

Albert L. Jacobs, Albert L. Jacobs, Jr. (James W. Dent, of counsel) for appellant.

Joseph Schimmel (S. Wm. Cochran, of counsel) for the Commissioner of Patents.

where R(1) may be a hydroxyl (-OH) or an alkoxy group; R(2) may be hydrogen or hydroxyl; R(3) may represent hydrogen, or a carboxyl radical (-COOH) which may be free, esterified or in salt form.

As to the manner in which those compounds are useful, the specification states: [***2]

OPINIONBY:

WORLEY

* * * The chief therapeutic uses of the novel compounds include the treatment of vascular disorders, and P-hypovitaminosis [vitamin deficiency] conditions. Some of the compounds further possess anti-inflammatory properties. [**974]

OPINION: [973]**

[*1524] Before WORLEY, Chief Judge, RICH, SMITH, and ALMOND, Associate Judges

WORLEY, Chief Judge, delivered the opinion of the court:

[*1525] This appeal is from the decision of the Board of Appeals affirming the examiner's rejection of process claims 1-9 and composition claims 10-13 n1 for

Applicants' investigations on synthesis products pertaining to isoflavones as a group, have demonstrated that 7-hydroxyisoflavone and derivatives thereof possess provitaminic properties in regard to vitamine P (or C2) in the sense concerning these properties which have been defined by Szent-Gyorgy and Jean-Louis Parrot. Vitamine P (or C2) is defined by these authors as a compound combining the following properties:

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The property of economizing and/or protecting adrenaline;

The property of economizing ascorbic acid (vitamine C);

The property that a combination of vitamines P and C eliminates scurvy n2 in a scorbutic animal where vitamine P alone is inactive and vitamine C alone has weak activity even in high doses. This property has been verified by histological tests involving deficient animals exposed to purely synthetic diets.

n2 According to Webster's New International Dictionary, 2nd Edition, 1949, "scurvy" is a "disease characterized by a tendency to hemorrhage, esp. into the skin and mucous membrances * * *. It results from a lack of vitamin C." [***3]

The property of increasing tissual and vascular resistance, the rate of increase being moderate in the healthy human or animal subject, and considerable in the deficient subject.

The compounds of the invention have been found to possess the above basic set of properties. They are especially well suited for the treatment of various circulatory disorders, especially blood vessel rupture, heightened blood pressure, meningial and cerebral haemorrhage, purpura, scorbutic phenomena, Barlow's disease, and other pathological conditions. Broadly speaking the products of the invention are applicable in connection with all manifestations of P-hypovitaminosis, including minor capillary fragility, varicosis, haemorrhoids, local and generalized inflammation, mainly of vascular origin such as phlebitis, periphlebitis, etc.

[*1526] The specification continues with a disclosure of several specific compounds. Exemplary are 7-ethoxy-2-carboxyl-isoflavone, said to have the "provitaminic characteristics" heretofore defined "to a very marked degree;" 5,7-dihydroxy-isoflavone and 5,7-dihydroxy-2-carbethoxy isoflavone, said to be "a powerful factor in the economy of ascorbic acid;" 7-ethoxy-carbethoxy-isoflavone [***4] and 7-ethoxy-5-hydroxy-2-carbethoxy-isoflavone which in addition to their "general provitaminic properties (a high economy factor for vitamine C, increase in tissual and vascular strength)" are said to have "the property of normalizing hydrosaline exchanges at the capillary level, especially when applied percutaneously;" 7-hydroxy-2-carbethoxy-isoflavone, said to have "good pro-vitaminic characteristics" of the type described; and 7-ethoxy isoflavone, said to be "a factor in the economy of ascorbic acid," to increase "tissual and vascular

resistance as well as normalizing hydrosaline exchanges at the capillary level when applied percutaneously," and to exhibit "a high antiinflammatory activity" on a general and local basis.

After setting forth the mode of administration in human therapy (e.g. orally, cutaneously, parenterally) in dosages ranging from 5 to 150 mg. per day, the specification concludes with six examples relating to "biological experiments" and "therapeutic applications" employing two specific compounds: 7-ethoxy-isoflavone and the sodium salt of 5,7-dihydroxy-2-carboxy-isoflavone (hereafter LV 104 Na).

Example 1 describes how the vitamin P activity of LV 104 Na [***5] was determined in guinea-pigs, a test animal "known to be susceptible to a form of scurvy fully comparable to the human form of the disease, both as regards the clinical manifestations and attendant histological disorders." [***975] The test animals were initially fed a diet "comprising all the basic food principles including sufficient doses of ascorbic acid [vitamin C]" as well as other vitamins, then were subjected to a "scorbutic" diet which decreased the capillary resistance of all animals to 10 cm. Hg as opposed to 30 cm. Hg in the normal animal. An oral dose of 1 mg/day/100 g. animal weight of LV104Na was administered to one half the deficient animals, while the other half remained on the scorbutic diet as controls. Six of the 10 control animals died of "haemorrhage effects," all showing a capillary resistance less than 10. Nine out of ten of the LV104Na-tested animals survived (the single death resulting from "anorexia, not haemorrhage"), and all showed normal capillary resistance after 5 to 7 days of treatment with LV104Na. Various degenerative phenomena were observed in a histological examination of the slaughtered control animals, while the treated animals, like normal [***6] animals, showed no such impairments.

[*1527] Examples 2-6 describe clinical treatment of human beings afflicted with "minor capillary fragility," "vascular rupture," "vitaminic deficiency," "haemorrhage" and "varicosis," respectively, with specific compositions containing, among other things, LV104Na and/or 7-ethoxy-isoflavone.

The subject matter is reflected in claim 1:

1. The method of treating vascular, inflammatory and vitamine-P deficiency disorders, which comprises administering to the disordered organism at least one isoflavone compound selected from within the group consisting of 7-alkoxy-isoflavones, 7-hydroxy-isoflavones, 7-hydroxy-2-carboxy-isoflavones and the sodium salt thereof, 7-hydroxy-2-carbalkoxy-isoflavones, 7-alkoxy-2-carboxy-isoflavones, 7-alkoxy-2-carbalkoxy-isoflavones, the sodium salts of the 7-alkoxy-2-carboxy-isoflavones, 5-7-dihydroxy-isoflavone, 5-7-dihydroxy-2-

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carboxy-isoflavone and the sodium salt thereof, 5-7-dihydroxy-2-carbalkoxy-isoflavones, wherein the alkoxy groups and the alkoxy portions of the carbalkoxy groups contain no more than 5 carbon atoms.

Only claims 5-9 are specifically directed to the treatment of human beings, reciting [***7] the treating of vascular and vitamin P deficiency disorders by "administering to the disordered human organism" certain amounts of the 7-ethoxy and LV104Na compounds of examples 1-6, while claims 10-13 relate to therapeutic compositions containing those compounds.

Faced with the recitations in appellant's specification as above set forth, the examiner initially rejected the claims for "absence of clear, convincing, scientific evidence that the composition is safe and effective for all the purposes intended." He found "no showings in the case of statistically significant therapeutic treatments of vascular disorders, by the claimed methods, with lack of toxicity to the patient, when applied to humans and animals suffering from vascular disorders" [Emphasis supplied.], viewing *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Novak*, 49 CCPA 1283, 306 F.2d 924, 134 USPQ 335; and *Commonwealth Engineering Co. v. Ladd*, 199 F.Supp. 51, 131 USPQ 255, as supporting the necessity for proof of usefulness.

While arguing that the specification itself contains sufficient evidence of usefulness, appellant submitted an affidavit of a Dr. Bernal, cardiologist at the Rothschild Hospital [***8] in Paris, describing the clinical use of LV104Na in treating vascular disorders including capillary fragility. Bernal stated:

* * *

2. He is well acquainted with the literature and prior work done in connection with the circulatory importance of the capillaries of the human body and the significance of capillary permeability and resistance in various disease conditions as especially related to vascular diseases; he is further aware that various disease conditions cause a lowering of capillary resistance in particular, and that measurements of capillary resistance are highly useful as a guide in [*1528] the determination of the severity [**976] of the disease condition of a particular patient and as a diagnostic aid in determining whether a patient has improved as a result of administration of medication, and it is in this way possible to determine when the medication has normalized capillary resistance and capillary permeability.

3. While many diseases cause a marked or drastic lowering of capillary resistance and capillary permeability, there are too many variables in patients with acute or highly painful disease conditions due to relatively rapid and erratic changes [***9] that occur both during the course of the disease and its treatment so

that such patients and disease conditions have been eliminated from consideration in connection with the clinical work hereinafter set forth and only patients with certain chronic diseases have been selected which can be and have been under observation and control for a substantial period of time and among these patients are diabetic patients, who often have capillary fragility and in whom the lowering of capillary resistance is usual along with vascular impairments, arthritis of the lower limbs, high blood pressure, coronaritis and especially diabetic retinopathies, as well as patients having lowered capillary resistance due to other arterial conditions without high blood pressure, arteriosclerosis and chronic cardiac insufficiency; thus, the patients were diabetics complicated by vascular complaints, patients with chronic arterial diseases such as atheroma, cases of cardiac insufficiency and cases of venous diseases such as varicose veins and hemorrhoids, these cases being classified for present purposes as cases resulting from cardiology (20 cases) and cases resulting from ophthalmology (24 cases).

4. Of the [***10] 44 cases treated with LV 104 Na in accordance with the invention in the above-identified application, important and lasting increase of capillary resistance was obtained in 40 cases (91%) and when using the LV 104 Na as the active therapeutic agent by oral, intramuscular and intravenous routes of administration, in no case was there any evidence of intolerance, allergy, inflammation or toxicity.

5. From the group of 44 patients referred to above, the following case histories are typical [there follows a short history of 5 patients, of which the following two are illustrative]:

(a) Marguerite M., 64 years of age, observed since 1955, diagnosis - arterial disease (angina), high blood pressure and change at the back of the eyes with lowering of capillary resistance to 20. After intravenous administration at the rate of 3 per week, the capillary resistance rose to 30 on the fourth day and persisted for the full fifteen days of the treatment.

(b) Eugene A., 67 years of age, under observation for high blood pressure with a capillary resistance less than 20. Upon treatment with intravenous injections at 48-hour intervals, the capillary resistance rose above 30 and when the treatment [***11] was discontinued the capillary resistance dropped again and upon the oral administration of three tablets per day for fifteen days the capillary resistance again rose above 30. [Emphasis supplied.]

In his first Answer, the examiner criticized the examples in appellant's specification, finding that they

* * * do not contain sufficient data based on controlled tests involving both animals and humans which would enable others of ordinary skill in the art to

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accept the allegations as obviously valid and correct. * * *
* [*1529] He also rejected the Bernal affidavit as adequate proof of utility, reasoning:

* * * [1] the affidavit does not contain sufficient examples and data based on controlled tests which would enable others skilled in this art to arrive at their own conclusion as to whether or not the invention would function as disclosed and claimed. [2] The affidavit does not indicate the LV [*977] 104 Na was the sole active component employed or that the tests involved controls. Furthermore, even assuming arguendo that the single compound reported in the affidavit was based on valid tests, [3] proof that the compound is useful for treating capillary fragility [***12] in humans can hardly be considered as support for treating vascular, inflammatory, and vitamin-P deficiency disorders in animals and humans by employing the specific compound of the affidavit or the other isoflavone derivatives claimed.

Thereupon, appellant submitted a second affidavit of Bernal, who stated that he

* * * hereby confirms and corroborates the fact that the said substance LV 104 Na was the sole and only active component employed in the product used for carrying out the tests referred to in the forty-four clinical cases, * * *.

Bernal further averred that

While no side-by-side comparative controls existed in the forty-four cases referred to, such were not necessary or required as all forty-four cases were well and conclusively established diagnostically * * *.

In a second Answer, the examiner appears to have accepted Bernal's statements at face value, but proceeded to propound other objections to the first affidavit, stating

* * * there remains no showing on record that all of the claimed compounds in all of the claimed amounts would be safe and effective for all of the conditions allegedly benefited. Claims 4-6 which are drawn to the compound set forth [***13] in the affidavit remain unpatentable in that the affidavit does not state what amounts were given or that all vascular conditions or all conditions resulting from a deficiency of vitamin P are improved by the administration of the claimed compound.

The board agreed in substance with the examiner's objections to the evidence presented in the specification and affidavits, adding not a few objections of its own.

It is true, as the examiner and board observed, that this court held in *In re Novak*:

In our opinion, when an applicant bases utility for a claimed invention on allegations of the sort made by

appellants here, unless one with ordinary skill in the art would accept those allegations as obviously valid and correct, it is proper for the examiner to ask for evidence which substantiates them. * * *

There the examiner gave valid reasons for doubting the efficacy of appellants' compositions and, no evidence appearing to refute those doubts and corroborate the assertions of usefulness, we affirmed.

[1] It is evident that the amount of evidence required depends on the facts of each individual case. In *Bluestone v. Schmerling*, 46 CCPA 842, [*1530] 265 F.2d 948, 121 [***14] USPQ 417, we assessed Bluestone's argument that Schmerling's specification was not a proper constructive reduction to practice:

Appellant by his arguments and by his reliance on *Smith v. Bousquet*, [27 CCPA 1136, 111 F.2d 157, 45 USPQ 347] which decision was concerned primarily with actual, rather than constructive, reduction to practice, appears to contend that it was incumbent on Schmerling to prove that the compounds will function as stated in his application. We do not understand that to be the law. In the absence of any apparent reason why the compounds disclosed will not so function, or of any evidence showing that they actually do not, the statements in the application are generally deemed sufficient. *In re Chilowsky*, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321. [Emphasis supplied.]

In *Chilowsky*, where the sufficiency and operativeness of a disclosure relating to nuclear fission were in issue, we stated:

In our opinion the same principles should apply in determining operativeness [*978] and sufficiency of disclosure in applications relating to nuclear fission as in other cases. There appears to be no basis in the statutes or decisions for requiring any more conclusive [***15] evidence of operativeness in one type of case than another. The character and amount of evidence needed may vary, depending on whether the alleged operation described in the application appears to accord with or to contravene established scientific principles or to depend upon principles alleged but not generally recognized; but the degree of certainty as to the ultimate fact of operativeness or inoperativeness should be the same in all cases.

Thus, in the usual case where the mode of operation alleged can be readily understood and conforms to the known laws of physics and chemistry, operativeness is not questioned, and no further evidence is required. On the other hand, if the alleged operation seems clearly to conflict with a recognized scientific principle as, for example, where an applicant purports to have discovered a machine producing perpetual motion, the presumption of inoperativeness is so strong that very clear evidence is required to overcome it. A third type of case was

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involved in *In re Harry E. Perrigo, 18 CCPA (Patents) 1323, 48 F.2d 965, 9 USPQ 152*, wherein the device involved was of such a nature that it could not be tested by any known scientific principles. [***16] In such a case, as we there held, it is incumbent on the applicant to demonstrate the workability and utility of the device and make clear the principles on which it operates. [Emphasis supplied.]

Appellant's discovery here does not appear to us to be of such a "speculative," n3 abstruse or esoteric nature that it must inherently be considered unbelievable, "incredible," or "factually misleading." n4 Nor does operativeness appear "unlikely" or an assertion thereof appear to run counter "to what would be believed would happen by the ordinary person" in the art. n5 Nor does appellant's field of endeavor appear to be one where "little of a successful nature has been developed" or one which "from common knowledge has long [*1531] been the subject matter of much humbuggery and fraud." n6 Nor has the examiner presented evidence inconsistent with the assertions and evidence of operativeness presented by appellant. n7

n3 *In re Ruskin, 53 CCPA 872, 354 F.2d 395, 148 USPQ 221.*

n4 *In re Citron, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; In re Citron, 51 CCPA 859, 325 F.2d 254, 139 USPQ 520.*

n5 *In re Pottier, 54 CCPA 1293, 376 F.2d 328, 153 USPQ 407.*

n6 *In re Oberweger, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455.* See also *In re Irons, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351.*

n7 *In re Corneil, 52 CCPA 1710, 347 F.2d 557, 145 USPQ 697; In re Corneil, 52 CCPA 1718, 347 F.2d 563, 145 USPQ 702; In re Corneil, 52 CCPA 1736, 347 F.2d 571, 145 USPQ 707; In re Woody, 51 CCPA 1317, 331 F.2d 636, 141 USPQ 518.* [***17]

To the contrary, appellant's assertions of usefulness in his specification appear to us to be believable on their face and straightforward, at least in the absence of reason or authority in variance. As the specification demonstrates, certain principles relating to materials possessing vitamin P activity have been delineated by earlier workers in the art. As we see it, appellant discloses nothing more than that his synthetic compounds possess properties in common with naturally occurring vitamin P materials, and are useful in treating manifestations of vitamin P deficiency including various vascular disorders, capillary fragility and the like. In one example, for instance, appellant states that "vascular

rupture" was "successfully treated" with 7-ethoxy-isoflavone in a specifically described carrier, and compares that compound favorably with rutin, a known bioflavonoid having vitamin P activity, n8 in the treatment [**979] of vascular disorder. Appellant also presented to the board, without contradiction, evidence that a wide variety of bioflavonoids, compounds which differ from those recited in the claims principally in the presence of a phenyl radical in position 2 rather [***18] than position 3, are known to have vitamin P activity and act to ameliorate capillary fragility, lending some small, further measure of credence to his specific assertions of usefulness.

n8 Rutin is defined by Dorland's Illustrated Medical Dictionary, 23rd Edition (1958) as A crystalline alcohol, C(27)H(30)O(16) * * *. It has the properties of vitamin P and has been used to reduce capillary fragility and thus prevent hemorrhage in patients with hypertension.

According to Kirk and Othmer, Encyclopedia of Chemical Technology, Vol. 3, p. 603, (1949), rutin has

* * * attracted interest because it is nontoxic and has the property of reducing increased capillary fragility in man to normal, a role that is distinct from ascorbic acid (vitamin C). Rutin has proved effective in certain hemorrhagic conditions in which capillary fragility or permeability is involved and it may be important in preventing vascular accidents, which occur in persons of high blood pressure. * * *

Appellant does not challenge the authority of the Patent Office in appropriate circumstances to require reasonable evidence relating to the "usefulness" that is disclosed and claimed for his particular isoflavones [***19] to be used on human beings. Nor do we here. But we agree with appellant that, on the facts of this case, the Patent Office is in effect seeking to require too much proof of the asserted usefulness. The examiner and board have simply given us inadequate reason to disbelieve the statements and evidence of usefulness appellant has provided in his specification with respect to LV104Na and [*1532] the 7-ethoxy compound, as well as the other compounds disclosed. n9 The additional affidavit evidence he has submitted is consistent with and convincingly corroborates those assertions. We have considered the various objections to the evidence made by the examiner and board. We think those objections either have been answered by appellant or are of such a relatively minor nature as not to affect our conclusion that appellant has established prima facie that the compounds will function as disclosed and claimed.

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n9 Compare *Commonwealth Engineering Co. v. Ladd*, 199 F.Supp. 51, 131 USPQ 255, where, like Novak, reasons for believing the claimed subject matter inoperative were given by

the examiner.

The decisions is reversed.