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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CUNEYT M. SERDAR
and
DOUGLAS MURDOCK

Appeal No. 93-2149
Application 07/312,503¹

ON BRIEF

Before WINTERS, WILLIAM F. SMITH, JOHN D. SMITH, Administrative
Patent Judges.

WILLIAM F. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 23, 24 and 33 through 35. Subsequently, these claims were canceled and replaced by claims 36 through 40 which are all the claims pending in this application.

¹ Application for patent filed February 17, 1989. According to applicants, the application is a continuation-in-part of Application 07/237,255, filed August 26, 1988, abandoned.

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Claim 36 is illustrative of the subject matter on appeal and reads as follows:

36. A method for the hydrolysis of a cholinesterase inhibitor comprising an organophosphate, said method comprising treating the cholinesterase inhibitor with a purified and isolated biologically active substance selected from the group consisting of mature parathion hydrolase and a methionine (-1) analog thereof.

The references relied upon by the examiner are:

Munnecke et al. (Munnecke). "Production of Parathion Hydrolase Activity." European J. Appl. Microbiol. Biotechnol., Vol. 8, pp. 103-112, 1979.

Mulbry et al. (Mulbry 1987). "Physical Comparison of Parathion Hydrolase Plasmids from Pseudomonas diminuta and Flavobacterium sp." Plasmid, Vol. 18, pp. 173-177, 1987.

Mulbry et al. (Mulbry 1986). "Identification of a Plasmid-Borne Parathion Hydrolase Gene from Flavobacterium sp. by Southern Hybridization with opd from Pseudomonas diminuta." Applied and Environmental Microbiology, Vol. 51, No. 5, pp. 926-930, 1986.

Attaway et al. (Attaway). "Bacterial Detoxification of Diisopropyl Fluorophosphate." Applied and Environmental Microbiology, Vol. 53, No. 7, pp. 1685-1689, 1987.

Harper et al. (Harper). "Dissimilar Plasmids Isolated from Pseudomonas diminuta MG and a Flavobacterium sp. (ATCC 27551) Contain Identical opd Genes." Applied and Environmental Microbiology, Vol. 54, pp. 2586-2589, 1988.

The claims stand rejected as follows:

I. claim 36 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Munnecke or Mulbry 1986 or 1987;

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II. claims 36 and 37 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Attaway or Harper;

III. claims 37 through 40 under 35 U.S.C. § 103 as unpatentable over Munnecke or Mulbry 1986 or 1987 in view of Harper or Attaway; and

IV. claims 38 through 40 under 35 U.S.C. § 103 as unpatentable over Attaway or Harper.

We reverse all rejections with the exception of the rejection of claims 36 and 37 under 35 U.S.C. § 102(b)/103 over Harper, which we affirm.

DISCUSSION

The claimed invention is directed to a method for the hydrolysis of a cholinesterase inhibitor which comprises an organophosphate. The method comprises treating the cholinesterase inhibitor with a "purified and isolated" biologically active substance selected from the group consisting of mature parathion hydrolase and a methionine (-1) analog thereof. As acknowledged by appellants and reflected in the prior art relied upon by the examiner, those of ordinary skill in the art were aware of methods for the hydrolysis of a cholinesterase inhibitor

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comprising an organophosphate prior to the present invention which comprised treating the cholinesterase inhibitor with parathion hydrolase.

Appellants' position is that the prior art only used crude extracts of parathion hydrolase and did not use a "purified and isolated" form of this enzyme as required by the present invention. While the phrase "purified and isolated" is not defined in the present specification with any specificity, it is apparent that the enzyme preparations encompassed by the present claims are of higher purity than those "obtained from crude or partially purified [cellular] extracts" (specification, page 10, lines 19-24). Example 2 of the specification sets forth a protocol used to purify parathion hydrolase to over 95% homogeneity. Appellants ask us to read the claims in light of this portion of the specification in order to distinguish the claims over the prior art. We decline to do so.

While the claims pending in a patent application must be read in light of the specification, it is improper to read unwritten limitations into the claims. In re Zletz, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Here, the phrase "purified and isolated" is reasonably interpreted as meaning a level of purification beyond that of "crude or par-

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tially purified [cellular] extracts." To read the claims as being limited to an enzymatic preparation where the enzyme has been purified to 95% homogeneity would be an impermissible reading of a limitation out of the specification into a pending claim. If appellants now consider this limitation to be essential in defining the claimed invention over the prior art, they should amend the claims to explicitly recite this value. In re Zletz, supra.

With the above claim interpretation in mind, Munnecke, Mulbry 1986 or 1987, and Attaway are not seen to be relevant since they only describe the use of crude cellular extracts of parathion hydrolase. The examiner appears to recognize this since the statement of the anticipation portion of these rejections includes the finding by the examiner that the isolation and/or additional purification of a component of a crude extract is well within the purview of one of skill in the art which speaks more of a determination of obviousness under 35 U.S.C. § 103 than anticipation under 35 U.S.C. § 102. In any event, whether considered under § 102 or § 103, the rejections over these references at best hinges on the examiner's unsupported statement that one of ordinary skill in the art would have found it obvious to further purify the crude extracts of Munnecke, Mulbry 1986 or 1987 or Attaway. Absent further evidence estab-

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lishing that one of ordinary skill in the art would have found it obvious to perform such a step at the time of the present invention, we hold that Munnecke, Mulbry 1986 or 1987 or Attaway individually would not have taught or suggested the claimed invention.

We affirm the rejection of claims 36 and 37 under 35 U.S.C. § 102/103 based upon Harper since that reference describes in column 1 that a whole-cell extract of parathion hydrolase which was able to degrade diisopropyl fluorophosphate was "purified" and was able to still degrade that compound. While Harper does not describe the precise state of purification of the so-called "purified" enzyme preparation, the claims on appeal are not limited to a specific level of purification for the reasons discussed above. All that claims 36 and 37 reasonably include is an enzyme preparation that has been purified to some unspecified extent over a whole-cell extract as in Harper. We include claim 37 in this rejection since it is not apparent from this record that the diisopropyl fluorophosphate degraded in Harper differs from diisopropylphosphoro-fluoridate required by this claim.

Separate discussion of claims 38 through 40 is warranted given the prosecution record of this application. Claim

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38 requires that the parathion hydrolase used in claim 36 have an enhanced specific activity as a result of having been produced in a culture medium which included a specified amount of cobalt, zinc or a mixture of cobalt and zinc. In our view, this claim requires the use of a parathion hydrolase which has an enhanced specific activity above and beyond that of the parathion hydrolase required by claim 36, but due to the product-by-process nature of claim 38², the claimed enzyme need only have such an enhanced specific activity, regardless of how that activity was achieved. Harper does not in and of itself teach or suggest parathion hydrolase having an enhanced specific activity beyond that obtained from the purified and isolated form of the enzyme disclosed in the reference. While Attaway does disclose that one parathion hydrolase was "stimulated" by manganese ions, that parathion hydrolase appears to be in the form of a crude extract and not in the "purified and isolated" form required by the claims on appeal.

To summarize, we affirm the rejection of claims 36 and 37 under 35 U.S.C. § 102/103 as anticipated by or unpatentable over Harper. All other rejections are reversed. Accordingly, the decision of the examiner is affirmed-in-part.

² Compare the present claim construction with that of the claim under review in In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976).

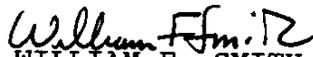
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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a).

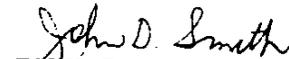
AFFIRMED-IN-PART



SHERMAN D. WINTERS)
Administrative Patent Judge)



WILLIAM F. SMITH)
Administrative Patent Judge)



JOHN D. SMITH)
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