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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EVANGELIA S. ARVANITIDOU and
MICHAEL PRENCIPE

Appeal 2020-000849
Application 15/422,314
Technology Center 1600

Before RICHARD M. LEBOVITZ, JASON V. MORGAN, and
DEBORAH KATZ, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

The Examiner rejected claims 1–4, 10–12, and 16–19 under 35 U.S.C. § 103 as obvious and under obviousness-type double-patenting. Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner’s decision to reject the claims. We have jurisdiction for the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Colgate-Palmolive Company. Appeal Br. 2.

STATEMENT OF THE CASE

Claim 1–4, 10–12, and 16–19 stand rejected by the Examiner in the Final Office Action (“Final Act”) under 35 U.S.C. § 103(a) as obvious in view of Zhu et al. (WO 01/17494 A1, published Mar. 15, 2001) (“Zhu I”), You-Pin Zhu, *Chinese Materia Medica: chemistry, pharmacology, and applications* 127–29 (1998) (“Zhu II”), and G. William Claus, *Understanding microbes: a laboratory textbook for microbiology* 423–24 (1989) (“Claus”). Final Act. 9; Ans. 5.

Claims 1–4, 10–12, and 16–19 stand rejected by the Examiner in the Final Office Action under obviousness-type double-patenting over various subsets of the claims of US 5,453,265, US 5,334,375, US 5,424,059, US 5,814,304, US 5,693,314, US 6,110,446, US 5,202,112, US 5,256,402, US 5,601,803, US 5,578,293, US 9,682,027 B2, US 8,974,772 B2, US 8,765,155 B2, US 9,242,125 B2, US 8,906,349 B2, US 8,481,004 B2, and US 8,628,755 B2, in combination with Zhu I and Zhu II. Final Act. 11–22; Ans. 13–20. Appellant requests that the obviousness-type double-patenting rejections be held in abeyance. Appeal Br. 7. However, the rejections are pending before us and therefore we summarily *affirm* the rejections.

Claim 1 is representative and is reproduced below:

1. An oral composition comprising
 - 1) 1–70% by weight of at least one humectant;
 - 2) 1–70% by weight of at least one abrasive compound;
 - 3) 0.001–5% by weight of a plant-derivable compound, comprising an extract of a *Scutellaria* species;
 - 4) an antioxidant selected from stannous compounds, stannate compounds, ammonium sulfates and sodium metabisulfite; and
 - 5) less than 6% by weight water.

OBVIOUSNESS REJECTION

The Examiner found that Zhu I describes an oral composition with the same components recited in claim 1, but not with an extract of *Scutellaria* species as required by the claims. Final Act. 9–10.

The Examiner found that the oral composition in Zhu I comprises tea polyphenols which “are useful for anti-bacterial and breath protection effects.” Zhu I, 5:8–9. Zhu I discloses, as found by the Examiner that “it is believed that tea polyphenol can deliver breath protection benefit due to its ability to inhibit the certain bacteria, e.g., *S. mutans* and *S. sobrinud*.” Zhu I, 5:21–23. The Examiner also found that Zhu I teaches that its oral composition can comprise other antimicrobial agents.² Final Act. 10.

To meet the deficiency in Zhu I, the Examiner cited the disclosure in Zhu II for its description of an extract of *Scutellaria* species that has antibacterial activity against oral bacteria. Final Act. 8. The Examiner further cited Claus as teaching that hemolytic bacteria (such as *S. mutans*), one of the classes of bacteria mentioned in Zhu II that *Scutellaria* species has antibacterial activity against, comprises oral bacteria. Final Act. 10.

The Examiner determined it would have been obvious to one of ordinary skill in the art to use the *Scutellaria* species extract described in Zhu II as an antimicrobial agent in the oral composition of Zhu I because Zhu I discloses that additional antimicrobial agents may be present in its composition and *Scutellaria* is an antimicrobial agent that has activity against oral bacteria, including *S. mutans* which is targeted in Zhu I. Final Act. 9.

² The terms “antimicrobial” and “antibacterial” are used interchangeably.

Appellant contends that “the skilled artisan would find no reason to assume that an extract of a *Scutellaria* species would impart antibacterial properties upon orally derived bacteria.” Appeal Br. 5. Appellant states that Zhu II “does not teach efficacy against oral bacterial at large, it teaches efficacy against hemolytic bacteria.” Reply Br. 2. Appellant argues:

There is no basis to assume that a microbe’s ability to carry out hemolysis (i.e., the rupture or destruction of red blood cells) has any correlation with its susceptibility to any given antimicrobial agent. The fact that *S. mutans* also happens to have hemolytic qualities is therefore not a scientifically plausible predictor of vulnerability to a *Scutellaria baicalensis* extract.

Appeal Br. 6.

Appellant’s arguments do not identify error in the Examiner’s rejection.

Zhu II has the following pertinent teaching:

The root [of *Scutellaria baicalensis*] has a wide antibacterial spectrum. Its decoction showed different degrees of antibacterial activity *in vitro* against hemolytic streptococcus, pneumococcus, meningococcus, *Staphylococcus aureus*, *Bacillus diphtheria*, *B. dysenteriae*, *B. anthracis*, *B. typhosus*, *B. paratyphosus*, *B. proteus*, *E. coli*, *Pseudomonas aeruginosa*, *Bordetella pertussis*, and *Vibrio comma*. Baicalin is the major antibacterial active component. In tests with selected oral bacteria, including suspected periodontopathogens, *Bacterioides melamnogenicus intermedius* was found to be most sensitive to a 2% decoction of *S. baicalensis*.

Zhu II, 127 (footnotes omitted),

Zhu II therefore expressly teaches that *Scutellaria baicalensis* (a member of the claimed “*Scutellaria* species”) has antibacterial activity against at least one oral bacteria (the periodontopathogen *Bacterioides melamnogenicus intermedius*). As explained by the Examiner, Zhu I teaches

the benefit of including anti-bacterial agents in its oral composition,³ providing a reason to have used *Scutellaria baicalensis* extract in Zhu I's oral composition for its known activity against an oral bacteria. The fact that *Scutellaria baicalensis* is active against one specific bacteria is motivation enough to put it in Zhu I's oral composition. Appellant does not explain why the lack of general teaching of activity against "oral bacteria at large" diminishes the teaching that the extract is effective against one specific species of oral bacteria.

Zhu II also teaches that *Scutellaria baicalensis* has antibacterial activity against hemolytic *Streptococcus*. Zhu II, 127. Based on the teachings in Claus, the Examiner found that some hemolytic *Streptococcus* reside in the mouth, namely on the teeth and gums, providing further reason to use Zhu II's extract in Zhu I as an antimicrobial agent in an oral composition used to treat the mouth.

Appellant argues that Claus's teachings about hemolytic bacteria do not make it obvious to have used *Scutellaria baicalensis* extract in Zhu I's oral composition. We do not agree.

Claus teaches that the hemolytic activity of *Streptococcus*, as measured on blood agar, is used "to distinguish species with the genus

³ "It is believed that the catechines are useful for anti-bacterial and breath protection effects. As the major components of malodor, methyl mercaptan and trimethylamine can be cleaned by using 2–5 mg/ml of catechines in about 2–5 minutes. At the same time, catechines can be adhered to the oral cavity for more than one hour. Without being bound by theory, it is also believed that tea polyphenol is potentially useful for anti-caries, anti-gingivitis, anti-stomatitis effect, as well as other oral health benefits." Zhu I, 5:8–14. "Other anti-microbial agents can also be present in the oral care compositions or substances of the present invention." Zhu I, 17:13–14.

Streptococcus because there is a good correlation between hemolytic activity and pathogenicity.” Claus 423. Appellant argues that it is “unclear why hemolytic qualities of a bacterium” in rupturing red bloods “would lead the skilled artisan toward any particular oral care composition in general.”

Appeal Br. 6. However, Claus does not teach that the hemolytic activity in lysing red blood cells is the antibacterial activity. Rather, this hemolytic activity is merely used to classify and distinguish *Streptococcus* species. Thus, Appellant’s argument is not persuasive.

Claus teaches that some *Streptococcal* bacteria, classified as hemolytic using the blood agar assay, cause diseases of the gum and teeth (“dental caries”), specifically identifying *S. mutans* and two other species. Claus, Table 46-2. Zhu II teaches that a *Scutellaria* extract, the same extract recited in the claims, inhibits hemolytic *Streptococcus*. Thus, one of ordinary skill in the art would have reasonably expected that *Scutellaria* extract would have anti-bacterial activity against oral bacteria residing on the gums and teeth. Zhu I teaches that its composition comprising tea phenol “can deliver breath protection benefit due to its ability to inhibit the certain bacteria” in the mouth, such as *S. mutans* (Zhu I, 5:21–23), providing reason to use the anti-bacterial agent of Zhu II to treat the oral bacteria in the mouth, including *S. mutans*. While Appellant points out that streptococcal bacteria are present in other human tissues (Reply Br. 2), this teaching does not denigrate the combined teachings of Zhu II and Claus that *Scutellaria* extract is useful to treat oral bacteria.

For the foregoing reasons, the obviousness rejection of claim 1 is affirmed. Claims 2–4, 10–12, and 16–19 are not argued separately and therefore these claims fall with claim 1. 37 C.F.R. 41.37(c)(1)(iv).

CONCLUSION

In summary:

Claims rejected	35 U.S.C. §	References/ Basis	Affirmed	Reversed
1-4, 10-12, 16-19	103	Zhu I, Zhu II, Claus	1-4, 10-12, 16-19	
1-4, 10-12, 16-19		Obviousness-Type Double Patenting	1-4, 10-12, 16-19	
Overall Outcome			1-4, 10-12, 16-19	

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED