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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/654,372	07/19/2017	Sofie Saerens	030427-0260	2096

22428 7590 02/25/2021

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EXAMINER	
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ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
02/25/2021	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte SOFIE SAERENS and
JAN HENDRIK SWIEGERS

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Appeal 2020-005386
Application 15/654,372
Technology Center 1700

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Before CATHERINE Q. TIMM, GEORGE C. BEST, and
JEFFREY R. SNAY, *Administrative Patent Judges*.

SNAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 4–14, 18, and 20–23. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

[1] "Appellant" refers to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies Chr. Hansen A/S as the real party in interest. Appeal Br. 2.

BACKGROUND

The invention relates to cocoa bean fermentation. Spec. 1. Cocoa beans ferment spontaneously through a succession of microbial processes starting with yeasts, followed by lactic acid bacteria, and then acetic acid bacteria. *Id.* at 2. According to the Specification, the Inventors discovered inoculating cocoa beans with a *Pichia kluyveri* yeast strain yields fermented cocoa beans with an improved flavor profile, exhibited by an isobutyl acetate/isobutanol ratio greater than 1 and an isoamyl acetate/isoamyl alcohol ratio greater than 0.005. *Id.* at 4–5. Claim 4 is the sole independent claim and reads as follows:

> 4. A method for the fermentation of cocoa beans comprising:
>
> (a) adding at least one *Pichia kluyveri* yeast strain to a plant material comprising beans and/or pulp derived from fruit pods of the species *Theobroma cacao;* and
>
> (b) fermenting the plant material to obtain fermented cocoa beans, wherein the fermented cocoa beans have a ratio of isobutyl acetate/isobutanol higher than 1 and a ratio of isoamyl acetate/isoamyl alcohol higher than 0.005.

Appeal Br. 24 (Claims Appendix).

Claims 4–14, 18, and 20–23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Eskes,[2] Masoud,[3] Buzzini,[4] and Rodriguez-Campos.[5]

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[2] WO 2009/103137 A2, published August 27, 2009 ("Eskes").
[3] Masoud, W. et al., *Pectin degrading enzymes in yeasts involved in fermentation of Coffea arabica in East Africa*, 110 International Journal of Feed Microbiology (2006), 291–296 ("Masoud").
[4] Buzzini, P. et al., *A study on volatile organic compounds (VOCs) produced by tropical ascomycetous yeasts*, 84 Antonie van Leeuwenhoek (2003), 301-311 ("Buzzini").
[5] Rodriguez-Campos, J. et al., *Dynamics of volatile and non-volatile compounds in cocoa (Theobroma cacoa L.) during fermentation and drying*

OPINION

The Examiner has the initial burden of establishing a prima facie case of obviousness based on an inherent or explicit disclosure of the claimed subject matter under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) ("[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability."). To establish a prima facie case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art or the inferences and creative steps a person of ordinary skill in the art would have employed. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

In rejecting Appellant's independent claim, the Examiner finds Eskes discloses adding pectinolytic yeast during cocoa bean fermentation, and points to Masoud for evidence that certain strains of *Pichia kluyveri* are pectinolytic. Final Act. 4. The Examiner thus finds one of ordinary skill in the art would have had a reason to select *Pichia kluyveri* for use as Eskes' pectinolytic yeast. *Id.* at 7.

Appellant argues the Examiner erred in finding Masoud would have evidenced a reason to inoculate cocoa beans with *Pichia kluyveri*. Appeal Br. 13–15. Particularly, Appellant contends Masoud "is focused on examination of pectinolytic activity on a coffee substrate, not cocoa." *Id.* at 14. Appellant argues the relied-upon prior art does not support a finding that

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processes using principal components analysis, 44 Food Res. Int'l (2011), 250–258 ("Rodriguez-Campos").

Pichia kluyveri would have exhibited similar activity on all pectin-containing substrates, or would otherwise have been useful for cocoa bean fermentation. *Id.* at 15.

In response to Appellant's argument, the Examiner states, "pectinolytic activity is universal." Ans. 11. According to the Examiner, both coffee and cocoa beans are "embedded in a mass of mucilage comprising pectin. Therefore, pectinolytic *Pichia kluyveri* strains would have been effective on both substrates." *Id.* at 11–12.

On this record, we are persuaded the Examiner has not identified evidence sufficient to support a finding that one skilled in the art would have had a reasonable expectation of success that using *Pichia kluyveri* would achieve the relatively high pectinolytic activity in cocoa bean fermentation desired by Eskes. To support a conclusion of obviousness, the prior art must give some indication of which parameters were critical or which of many possible choices is likely to be successful. *Grunenthal GMBH v. Alkem Labs. Ltd.*, 919 F.3d 1333, 1345 (Fed. Cir. 2019). The required guidance is lacking here. As Appellant points out, Appeal Br. 16; Reply Br. 7, Masoud reports significantly different *Pichia kluyveri* activity when cultured on yeast polygalacturonic acid medium vs. coffee broth. *See* Masoud 293, Table 1. That data supports Appellant's argument that *Pichia kluyveri* activity would have been considered substrate-specific. On the other hand, the Examiner's contention that pectinolytic activity is universal, irrespective of whether the substrate is coffee or cocoa, is without supporting evidence. It is well established that "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

For the foregoing reasons, we are persuaded the Examiner erred in finding Masoud would have guided one skilled in the art to substitute *Pichia kluyveri* for any of the yeasts mentioned in Eskes. The Examiner does not rely on either Buzzini or Rodriguez-Campos in a manner that cures the above-mentioned defect.

We do not sustain the rejection.

CONCLUSION

The Examiner's decision rejecting claims 4–14, 18, and 20–23 is reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
4–14, 18, 20–23	103(a)	Eskes, Masoud, Buzzini, Rodriguez-Campos		4–14, 18, 20–23

REVERSED