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Ikechi Mgbeoji

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Author Contact:

Osgoode Hall Law School, York University
4700 Keele St., Toronto, ON, Canada M3J 1P3
Email: imgbeoji@osgoode.yorku.ca

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**ADVENTITIOUS PRESENCE OF PATENTED GENETICALLY
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The law of patents has long struggled with the status of intent in determining liability for infringement. This struggle has recently been given a sharper edge by the emergence of biotechnological products with the inherent ability of auto-dispersal and regeneration. The question thus is whether a person on whose backyard a patented genetic organism has grown without the active intervention of that person is liable in infringement to the patentee of that organism. This article examines the ramifications of the legal conundrum and argues that upon a proper construction of the theories of liability in patent law, intent to infringe is necessarily crucial if the nature of the subject-matter of the patent makes it unjust and absurd to argue otherwise.

Keywords: patent, genetically modified organism, infringement

Author Contact: Ikechi Mgbeoji
Osgoode Hall Law School, York University
4700 Keele St., Toronto, ON, Canada M3J 1P3
Email: imgbeoji@osgoode.yorku.ca

ADVENTITIOUS PRESENCE OF PATENTED GENETICALLY MODIFIED ORGANISMS: IS INTENT NECESSARY FOR ACTIONS IN INFRINGEMENT?

Ikechi Mgbeoji¹

I. INTRODUCTION

Patent law has in the past two centuries exhibited an incredible capacity for survival in the face of daunting odds (Drahos/1996). From its earliest beginnings in medieval Florence and Venice, to its contemporary omnipresence, the patent system remains a study in resilience and adaptability (Mgbeoji/2006). Examples of its historical trials and triumphs include the British public outrage against monopolies with the resultant emergence of the Statute of Monopolies; the excessively predatory practices of patent monopolies of 18th century and the resultant introduction of compulsory licensing; and lately, the emergence of biotechnological industries and the consequent relaxation of the doctrines on patentability (Dutfield/2003).

In its growth and development, the patent system has been influenced by the flow of capital to new industries such as in the emergence of the chemical industry in Western Europe; the birth of biotechnology in the past century; and the ubiquity of information technologies in contemporary times (Abbott/2002). Put simply, there is a persuasive school of thought that argues that doctrines and principles of patent law often reflect the prevailing self-interests of influential and powerful industrial interests. (Anderfelt/1971). As a recent commentator observed, the history of technological industries “recounts how these

¹ Associate Professor, Osgoode Hall Law School, York University; LLB (Hons) Nig., BL (Lagos), LLM (*summa cum laude*) (Dalhousie), JSD (*summa cum laude*) (Dalhousie), imgbeoji@osgoode.yorku.ca.

corporations have affected and been affected by the development of intellectual property law not just recently but going over back over a century, and have helped to shape the intellectual property (IP) regimes in many countries and internationally in very fundamental ways that today's policy makers ought to be aware of" (Dutfield/2003).

Of course, the processes in which powerful corporations and their parent states influence patent doctrine are not without controversy (Reddick/2004). It is plausible that with the exception of the anti-patent movement that swept across Western Europe and the United States in the late nineteenth century, no other threat to the existence of the patent system has been as dire as various technological challenges that often stretch the principles and doctrines of patent law to incredulous lengths (Acharya/1999). In this context, a contemporary issue and one in which the influence of powerful corporate entities is implicated is whether intent is part of the law on patent infringement. In particular, is a person who by no individual fault comes into possession of adventitious patented genetic material (*e.g.*, through the accidental, or adventitious appearance of a genetically modified organism) be liable to the patentee in infringement?

This question arises because of the unique ability of certain biotechnological inventions to escape the control of their lawful owners (Bent., et al/1987). Biotechnological products, particularly, transgenic products, are unique at least in one respect: they can, and do replicate themselves in a manner outside the control of either the patent holder or the alleged infringer (Bud/1993). The status or lack thereof of intent in the law on infringement of patents with particular respect to adventitious genetic material is one that has recently aroused the interest of some scholars. (Cullet/2005). This in turn compels a re-consideration of the traditional law on infringement of patents.

Patent law grants a patentee, the exclusive authority to make, sell, use, construct or otherwise exercise proprietary control over the subject-matter of the patent (Roughton/ 2006). In effect, any person who without the consent and permission of the patentee, makes, sells, uses, constructs or otherwise exercises proprietary control over the subject-matter of a valid patent has infringed the patent and is potentially liable to the patentee. Infringement does not cover a product as such; it covers acts relating to a product such as making it, dealing with it, keeping it or by such other acts that interferes with the rights of the patent holder. Without overstating the importance of the issue, the "core of any system of patents is infringement" (Roughton, *et al*/ 2005).

Although the element of intent in infringement of patents has largely been dealt with by the courts for decades largely in relation to the assessment of damages, traditional patent law doctrine has long been of the view that in most cases, intent is irrelevant when considering the issue of infringement. However, none of the old cases have dealt with the issue in relation to the specific question of whether the old doctrine is sensible with respect to adventitious genetic material. Two recent cases from Canada--*Monsanto Canada Inc. v. Schmeiser*; *Hoffman v. Monsanto Canada Inc.* (currently under appeal)- somewhat broached the issue. In *Monsanto v. Schmeiser*, Monsanto successfully argued that ownership of a patent for a molecularly engineered plant patent gene and transgenic plant seed entitled it to full control over stray plants and progeny containing the gene. The flip side of the argument, that is, whether the patentee is equally responsible for any damage caused by patented stray genetic material was raised in *Hoffman v. Monsanto*. Although the merits of this argument has not yet been tested in the courts,(Glenn/2003) it would suffice to note that a patentee is hardly responsible for any wrongful use of or damage caused by an invention to third-parties (c/f deBeer/2007)

The narrow issue which this paper seeks to explore is whether traditional patent law's stance on intent in relation to infringement is sensible when applied to adventitious patented GMO's. In other words, to be liable in infringement, would a plaintiff have to show that the authorised making, selling, or using of the patented GMO by the defendant was intentional? Conversely, would a defendant escape liability in infringement by showing that the subject-matter of the patent came into his/her possession without his/her knowledge? Towards a careful examination of this issue, this short paper is divided into 4 parts including the introduction. Part 2 examines the doctrines and legal principles governing the construction of claims in patent law. In the determination of whether an act of infringement has occurred with respect to a valid patent, the first task is to identify and delimit the scope of property rights to which the patent holder is entitled. Thereafter, the fact finder proceeds to determine the subordinate issue of whether the acts complained of has interfered with the rights of the patent holder. With patented genetic products capable of escaping from the control of a patent holder or a lawful licensee, the second aspect of infringement raises peculiar problems, especially, the element of intent. Part 2 thus seeks to settle the question of whether infringement is absolutely a strict liability tort (strict liability involves liability even where there is no fault or carelessness) or whether there are circumstances in which intent to infringe is a necessary element in a case of infringement.

Part 3 takes the analysis further by exploring the peculiarities of self-dispersible and adventitious patented GMOs. In addition, part 3 contends that if the patented GMO is an adventitious type, it stands to reason that intent to infringe is a relevant issue and as such, no reasonable tribunal may make a finding of liability without resolving the issue of intent. Part 4 concludes the analysis with an observation that modern patent law would need to be revised to accommodate the justice of ensuring that innocent defendants who for no fault of theirs find patented

genetic materials in their possession are not penalized in damages (Siebrasse/2004).

II. INFRINGEMENT OF PATENT RIGHTS IN CONTEMPORARY PATENT LAW

Although the scope and incidents of the rights granted to a patent holder are statutorily prescribed, the nature and character of such statutory provisions have necessarily been fleshed out by various judicial pronouncements. From the statutory perspective, s. 42 of the Canadian Patent Act provides for the scope and incidents of patent ownership. The section provides thus:

s. 42. Every patent granted under this Act...shall subject to this Act, grant to the patentee and the patentee's legal representatives for the term of the patent, from the granting of the patent, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication in respect thereof before any court of competent jurisdiction. [emphasis mine] (Patent Act)

By the foregoing, it seems clear that a patent seeks to protect the subject-matter of the invention from unauthorised acts that interfere with the rights of the patent holder (Whirlpool/1999). In short, a patent is infringed when a person, without the lawful consent, permission or authorization of the patentee makes, constructs, uses or sells the subject-matter of the patent (Apotex/2002). It must be understood here that the property rights forming the subject-matter of the patent are as delimited in that portion of the patent document generally known as the "claim/s". The claim/s delimit(s) the scope and nature of the exclusive property rights granted to the patent holder (Freeworld/2004).

Consequently, when a question of alleged infringement of a patent is in issue, the courts refer to the claims in the patent for a proper understanding of the scope of the patentee's rights. Absent a determination of the scope of a patentee's property rights, it is not possible to make a determination as to whether or not an act of infringement has occurred. This distinction is of radical importance because two or more inventions may cover a similar subject-matter and yet not infringe each other if the claims are worded differently or the words used capture the essence of different inventions. For example, if a person invents a pistol and another person invented a telescopic rifle, both products, though covering a similar subject-matter—guns—may differ in the property rights of each respective patentee. The latter would not infringe the former if the claim deals with the application of a telescope to a gun. Thus, the words used in the claims and the approach adopted by court in the construction or interpretation of the words are crucial in determining whether or not an infringement has occurred.

In the biochemical or pharmaceutical fields, differences in the words used in the claims can be very significant, indeed, radical. For example, Prof. Daly and the National Institutes of Health (NIH) own US patent# 5,565,573 on synthesis of epibatidine and analogs thereof; US patent #5,545,741 for the process of preparing of epibatidine; US patent #5,510,490 for the process of the preparation of epibatidine, and US patent # 5,314, 899 for epibatidine and derivatives plus compositions and methods of treating pain. On the other hand, Abbott Laboratories owns US Patent #6,133,253 on the use of epibatidine derivatives for treatment of pain while UCB SA of Belgium owns patent # 6,177,451 & 6,077,846 claiming use of epibatidine for treating nicotine addiction, Tourette's syndrome, Parkinson's disease, and Alzheimer's disease. All the patents relate one way or another to epibatidine but differ significantly on the many potential uses of and methods of making epibatidine. Invariably, it is the claim(s) in the patent that define the scope of property rights granted to a patent-holder. Claims that have been drafted

widely are more likely to be infringed than those with narrow claims. (Mgbeoji: 2003)

Given the central role of claims in the determination of infringement cases, the important question that falls for determination is: how do the courts interpret claims? As earlier noted, finding infringement is both an issue of law and of fact. While the interpretation of the scope of claims is a question of law, the determination of whether the defendant's conduct falls within or outside of the lawfully delimited scope of the patent rights of the patentee is in itself a question of fact (Freeworld/2004).

With respect to the former, various courts in diverse jurisdictions have in the past century, grappled with the appropriate approach to the construction of claims and thus, the determination of infringement. In the United States, for example, the "pith and marrow" approach held sway for decades (Graver Tank/1950). The pith and marrow approach posits that an infringement occurs when a defendant unlawfully takes, makes, and uses the pith and marrow of an invention. By this approach, courts in the United States purport to distinguish between the pith of an invention from the bells and whistles. This approach is also known as the doctrine of equivalents (Warner-Jenkinson v Hilton Davis/1997). In applying the doctrine of equivalents, the court asks and determines, "what constitutes the essential components of the invention?" If the invention is a mechanical device, for example, the test is one of mechanical equivalence. In making a factual determination on infringement, the test would have to determine whether the alleged infringer's device interfered with the monopoly enjoyed by the original patented mechanical device. Similarly, if the invention is a chemical compound, the issue would be whether the patented substance differs from similar compounds of the same class (Warner-Jenkinson/1997).

In practice, however, the US doctrine of equivalents boils down to what is generally referred to as the triple identity test, that is, whether the alleged infringing article performs the *same function*, in the *same way*, and produces the *same result* as the patented subject matter (Graver Tank/1950). The triple identity test offers little protection when the alleged infringement pertains to inventions of great sophistication and subtlety where the slightest difference or nuance could make radical differences between the allegedly infringing product and patented product. Moreover, when the inventions at issue pertain to biotechnological products capable of drifting and regenerating on their own without human intervention, the limitations of the triple identity test become obvious.

Although decisions in the court of one country are not binding on the courts of other countries, it is often the case that courts with similar legislative provisions often engage in some form of “dialogue” with one another (Hogg/2004). It is therefore not surprising that the triple identity found its way into Canadian patent law in the 1960s and 1980s (McPhar/1960) but seems to have been eclipsed by what is referred to in Canada as the “purposive approach” (the purposive approach seeks to understand what the purpose of the original invention is, having regard to the claims in the patent) (Whirlpool/2000). Since the decision of the Supreme Court in *Free World v. Electro Sante*, it is settled law that courts in Canada construe the claims in a purposive manner to determine whether the defendant’s conduct infringed on the rights of the patent holder. In England, the current approach seems to be the natural construction route (that is, a process whereby the words used in the patent claims are given their natural and ordinary meaning as understood by persons skilled in the relevant art) advocated by Lord Hoffman in *Kirim-Amgen* [Kirim-Amgen/2004].

Regardless of which interpretive approach a court chooses to apply, once the court comes to a conclusion as to the scope of property rights conferred on the patentee, the alleged infringing

acts of the defendant would then be examined to see if those acts in fact amount to infringement. None of the interpretive approaches to claims construction throws any direct light on whether intent is required to prove infringement in cases involving adventitious GMOs. One may also wonder whether it is really necessary in cases of infringement of genetic patents that a court should consider the element of intent. This doubt arises because a general survey of court decisions in either the US or Canada on infringement yields the impression that infringement is unquestionably a strict liability tort. Indeed, ignorance of the law is an ambiguous point of law in infringement cases.

To resolve the ambiguity, a distinction must be drawn between ignorance of the legal consequences of the act in question on the one hand and the absence of intent on the part of the alleged infringer on the other hand. Like in most cases, ignorance of the law, and thus of the legal consequences of an act is no excuse. Thus a person who consciously conducts certain activities incompatible with the rights of a patentee, although s/he was oblivious of the legal consequences of such an act cannot escape liability on infringement by pleading his ignorance of the legal consequences of acts of infringement. It is therefore natural that in the reasoning of both Canadian and American courts in cases of infringement of patents, little or scant regard has been paid to the ignorance of the infringer of the legal consequences of the infringing acts.

Generally speaking, for liability to exist in patent infringement, intent is not relevant (Blair & Cotter/2002). For this apparent reason, patent infringement is often characterized as a strict liability tort. However, this characterization is only partially correct. To the extent that a defendant may be held liable without having any notice, prior to the filing of an infringement action, that his/her conduct was infringing, the tort of infringement may be described as one of strict liability. On the face of it thus, unintentional or inadvertent infringement is not

a defense to a patent infringement. Thus, generally speaking, a court may enjoin a defendant even if the only notice the defendant had about the patent in issue was the actual writ commencing the infringement action.

In some cases, however, there are both statutory and judicial bases in some jurisdictions such as the US and England for the view that infringement is an objective as opposed to an unforgiving regime of strict liability. First, in the US, while assessing damages for infringement, courts take into account the element of intent. Indeed, in such cases, courts subscribe to the test of “whether the infringer, acting in good faith and upon due inquiry, has sound reason to believe that it had the right to act in the manner found to be infringing” (SRI Int. v. Advanced Technology Lab/1997).

Second, and with specific regard to the finding of liability in infringement, courts in England have held that in cases pertaining to the use of a process, intent is required to show that the putative infringer knows or it is obvious to a reasonable person in the circumstances that the use of the process is infringing (Roughton/2006). Third, in cases pertaining to supplying means of putting a patented invention into practice, intent is equally required to prove that the putative infringer knows or it is obvious to a reasonable person in the circumstances that the supply of the means in question is suitable for putting the invention into use and thus infringing (Adams/2006). Thus, with respect to acts of infringement consisting of the unauthorized importation, use, sale, or offer to sell of unpatented products of a patented process, a defendant in jurisdictions such as the UK may be liable for damages if s/he has actual knowledge or constructive notice prior to the infringement. Fourth, in English patent law, intent is a crucial element in infringement cases where the patent at bar claims a product of which is to be used in a particular way (Merrill-Dow/1995). Generally known to UK patent lawyers as “Swiss-

type claims”, such claims are of the form of “compound XYZ for use as ABC” (Roughton/2006)

Therefore, from the foregoing, a careful survey of some pertinent cases from both US and England on infringement shows that patent infringement is not always a determination that is made without regard to the nature or characteristics of the invention in issue. It would seem that a dogmatic or indiscriminate invocation of the strict liability approach is not always the case when the courts are called upon to determine infringement cases. The nature and characteristics of the invention matters a great deal. Thus, it stands to reason that in cases where the character of the invention is not susceptible to arguments on whether or not the alleged infringer intended to infringe, the courts would naturally consider the issue moot.

However, where the nature and characteristics of the invention are such as to raise grave questions on the intent of the alleged infringer, it is submitted that a court should adopt and apply the totality of circumstances test. This approach, already applied with respect to the issue of assessment of damages in “wilful infringement” cases is already well developed in United States patent law. As Pall has amply demonstrated from a careful scrutiny of case law in the United States, courts there apply certain criteria such as (a) copying of the patented product, (b) duration of the misconduct, (c) remedial action taken by the infringer, and (d) the defendant’s motivation for harm, *et cetera* in determining whether the alleged infringement was wilful or not.

Put simply, in appropriate cases, patent infringement turns on whether there has been deliberate disregard for the property rights of the patentee. In such cases, the test would be whether the infringer exercised due care to avoid infringement. It may therefore be stated with confidence that although infringement is often dealt with as a strict liability offence, most of the decisions which yield this impression invariably relate to

inventions that lack the capacity for auto-dispersion and self-regeneration, thus rendering redundant any need for judicial examination of whether intent is crucial or material to the issue of infringement. It is submitted that given that there are already well-established principles of law and instances where, as a result of the nature of inventions in issue, the courts require intent as a criterion in determining infringement, it is incorrect to assert that intent is completely irrelevant in the determination of infringement (Wright/2001).

However, one should be careful not to overstate the element of intent in infringement cases (Blair & Cotter/2002). It remains good law that a patentee who does not market any products embodying the patent would recover damages for acts of infringement that occurred prior to the defendant's receipt of the writ of summons. Naturally, the damages would be in the form of royalties, not lost profits (Blair & Cotter/2001). Be that as it may, it is an overstatement of the legal position to assert that intent is completely absent in determining infringement. The better view, in my opinion, is that there are instances, often dependent on the nature and characteristics of the alleged infringed invention, where the state of mind of the alleged infringer is material (Beidler/1935). The question that falls now for determination is whether the mental element is required in infringement cases involving adventitious GMOs. On this issue, I turn to the decision of the Canadian Supreme Court in *Monsanto v. Schmeiser*.

III. ADVENTITIOUS GMOs AND THE ELEMENT OF INTENT IN PATENT INFRINGEMENT

Regardless of where one stands on the debates on the manifold impacts of genetically engineered crops, a contemporary problem with such crops is genetic drift (Khoury & Smyth/2005). Genetic drift pertains to the inadvertent spreading of genetically modified organisms (GMOs) from locations that have chosen such technology to other locations that would not

want GMOs (Repp/2000). Beyond serious environmental issues, an unfolding difficulty is the liability of innocent persons for adventitious patented GMOs that have drifted and germinated without the intervention of the alleged infringer. Of course, the flip side of the question is the responsibility of GMO patentees for damages arising from the genetic drift. Two cases originating from Saskatchewan, Canada, capture the complexities of these emergent legal questions (Phillipson/2006). This paper focuses on the former question.

In *Monsanto Canada Inc. v. Schmeiser*, the defendant farmed a large plot of land with non-genetically modified canola. Many of the neighbouring farms utilized genetically modified canola engineered to be resistant to glyphosate, an herbicide manufactured by Monsanto. From all accounts, the controversy began when quantities of the genetically modified canola was detected on Mr. Schmeiser's property. Evidence accepted by all courts involved in the litigation concluded that Mr. Schmeiser deliberately re-planted the patented GMO without obtaining the appropriate license. The majority of the Supreme Court found that possession of a plant containing a patented gene constitutes "use" and therefore infringement.

By virtue of the Technology Use Agreement between Monsanto and contracted farmers, the court reasoned on the question of infringement that any person who knowingly "uses" a plant containing the patented gene without appropriate license infringes the terms of Monsanto's patent. On the evidence, the court held that Mr. Schmeiser knew or should have known that the canola on his farm were glyphosate resistant. Although the essence of the invention lay in the plant's resistance to glyphosate, the majority held that Schmeiser's failure to spray his crop with herbicide was immaterial because of the patent's "stand-by utility." Thus, as the majority of the court reasoned, when Schmeiser harvested and replanted the patented GMO, he had knowingly appropriated or "used" a patented subject-matter without legitimate authorization or license.

Some commentators have argued that by the court's reasoning, the test applied was one of actual or constructive knowledge as opposed to an intent-to-acquire (Preston/2003). With all due respect, this interpretation does not sit well with the evidence as accepted by the court. The concurrent finding of the courts is to the effect that irrespective of how he came about the patented GMO, Mr. Schmeiser deliberately harvested and re-planted the GMO. In effect, Mr. Schmeiser did not only have a constructive knowledge that patented subject-matter was on his property, by harvesting and re-planting the patented GMO, there was an intent-to-acquire the patented GMO.

Nevertheless, the reasoning of the plurality of the court is problematic in one major respect. The problem stems from the fact that the "invention" in issue was the engineered plant's resistance to glyphosate. Absent the plant's artificially induced resistance to glyphosate, there is no invention to protect with a patent. Thus, "use" of the patented genetic material can only be effected by spraying the crop with the herbicide. Absent this, the crop is materially similar to the non-GM variety. To this extent, the reasoning of the courts in *Monsanto v. Schmeiser* overstates the case of infringement against Mr. Schmeiser (Cullet/2004).

It is significant, however, that the judge accepts the proposition that where landowners ignore adventitious presence of patented seed, "it would be unfair" to hold such landowners liable in infringement. The court declined to issue a decision on this point because it assumed that Mr. Schmeiser knew or should have known that the seeds he saved were glyphosate resistant seeds. It is tempting to conclude from the judgment of the court that in determining the issue of infringement, the element of intent is otiose and indeed, irrelevant. It is submitted that a careful reading of both the trial and appellate judgments strongly suggests that intent is indeed an important element in infringement, particularly, having regard to the characteristics of the invention alleged to have been infringed.

It seems obvious, at least to the present writer, that the main reason why courts have generally not focused on the element of intent in infringement cases is that they have until the emergence of self-propagating genetic matter dealt with cases involving non-living and non self-propagating matter. The character or type of the invention implicated in an infringement is crucial to how or whether the court pays attention to the issue of intent. Where disputes involve inventions without a capacity for self-propagation, it would seem that the issue of intent would be too remote to warrant judicial commentary or analysis.

IV. CONCLUSION

The foregoing discussions highlight the shortcomings in the present law and raise the issue of how best to re-articulate the position regarding intent in infringement cases involving patented GMOs with capacity for drift. It is eminently sensible that given the nature of patented GMOs that can drift onto someone's property and repeatedly propagate themselves without human intervention, the element of intent in infringement cases is indispensable (Farnese/2004). It is for the foregoing reasons, and especially, the novelty of the issue itself, that in determining the issue of infringement in the *Schmeiser* case, the appellate court explicitly acknowledged that "the patented Monsanto gene falls into a novel category" because "it is found within a living plant that may, without human intervention, produce progeny containing the same invention" (Schmeiser/2002).

It is telling that the court stated that it left open the question of whether *Monsanto* could enforce a claim against a farmer who inadvertently comes into possession of a GMO plant but does nothing "to cause or promote the propagation of the plant or its progeny (by saving and planting the seeds, for example." Of course, courts do not determine issues that have not been placed before them. However, it is respectfully submitted that in a

hypothetical case where the patented GMO drifted to the property of an innocent party who takes no positive steps to replant, sell or in any manner purport to exercise ownership over the GMO, no action in infringement against such a person would succeed.

Possession of a patented product, without more cannot be a sufficient basis for a claim of direct patent infringement. Indeed, in the American case of *L.A. Gear v. E.S. Originals Inc*, the court reasoned that “as a matter of law, mere possession of a product or machine covered by a patent does not constitute infringement, absent a threatened or contemplated use or sale. It seems implicit in cases on infringement that to be liable, the alleged infringer must possess the patented product in the expectation or hope of deriving a profit from it. Absent this qualification, patent law would be left with the ludicrous result that a defendant who unwittingly comes into possession of a patented item will be automatically held liable for infringement. Such a state of affairs is neither consistent with common sense nor in accord with ordinary notions of justice.

Scholars are increasingly thinking their way through the complex questions raised by adventitious GMOs and the injustice of a strict liability regime for infringement of GMOs (Lichtman/1997). In a thought provoking paper, Stephen Maurer and Suzanne Scotchmer have argued for the recognition of an independent discovery defense in patent law. Under this regime, the standard of liability would be intentional copying (Maurer & Scotchmer/1998). However, the global minimum standards on patentability as articulated under the Trade-Related Aspects of Intellectual Property Agreements (TRIPs) considers it illegal for states to institute the independent defence as part of domestic patent law. Similarly, arguments on the benefits of a negligence standard for infringement run into problems of high administrative costs and variations in the standard of care (Blair & Cotter/2002). States would balk at the idea of setting up bureaucracies to determine issues of negligence with respect to

adventitious GMOs. Standards of negligence itself would vary from one type of GMO to the others. At the end of the day, no proposed reform is perfect. Nevertheless, Blair and Cotter have made some interesting suggestions for reform that policy-makers would do well to seriously consider. First, they propose adopting an “actual knowledge standard in a few discrete situations in which the policies that otherwise may favour an actual or constructive notice standard do not apply” (Blair & Cotter/2002). This approach would be eminently sensible in cases where the infringer knew or had reason to know of the existence of the patent in issue (Lee & Burrell/2002). There is no compelling reason why biotechnological inventions with inherent capacities of auto-regeneration and dispersion should not fall into this category.

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