Oral submucous fibrosis and myofibroblasts

Oral submucous fibrosis (OSF) is a chronic, pre-malignant, fibrotic condition which can affect any part of the oral cavity, sometimes the pharynx, esophagus[1], occasionally the larynx and involves abnormalities in collagen turnover[2], with areca being the principal causative agent[3]. This condition is a global public health problem and cessation of the habit alone will not reverse the condition. Despite several states in India banning tobacco-based products, the chewing of areca alone, in different forms and by different methods[4,5], is associated with OSF[6] and has reached epidemic proportions[7]. Currently, there is no cure for this condition and among other approaches[2], the use of muscle relaxants as part of the treatment protocol has also been reported[8].

Stiffness and blanching of the oral mucosa has been associated with the occurrence of palpable fibrous bands, due to the sub-epithelial and mucosal myofibrosis-mediated fibro-elastic changes. These changes can lead to a progressive limitation in mouth-opening criteria and protrusion of the tongue, thus causing difficulty in eating, swallowing and phonation[9]. Not all chewers exhibit the clinical features associated with OSF[10].

The detection of myofibroblasts (contractile cells) by staining for α-smooth muscle actin and its correlated increase with increasing severity of the disease is evidence for its role as a marker for better classification of this disorder[11]. *Ex vivo* studies on myofibroblasts isolated from the buccal mucosa of OSF patients would enable us to obtain a better understanding of the heterogeneity and differentiation status of this cell type in oral wound healing. This approach will also provide a reference for comparison with the cell lines established *in vitro* with a myofibroblastic phenotype using arecoline[12] or TGF-β1 (ref. 13). Such cell lines can also be used as a screening tool for drugs of ethno-pharmacological origin[13] as well as for nanotechnology-based approaches for reversal of the myofibroblastic phenotype[13]. Also, when extended to co-culture experiments, paracrine influences of other relevant cell types in oral wound healing and fibrosis can be better evaluated[14].

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Spurt of scientific journal publishing in India – business or knowledge sharing?

The recent spurt in the number of journals published in India has increased manifold. This spurt in the number of journals, unfortunately, is not sharing of knowledge or dissemination of information for public good or the benefit of society. Rather, these journals have been started with the intent of generating money. Most of the journals claim to be indexed in one or the other indexing agency. It is good to have journals indexed so that their viewership would increase because it will provide the needed authenticity and quality regarding content. On the flip side many of these journals are not indexed in reputed indexing agencies. The journals are neither focused in scientific disciplines nor have quality content that would provide the readers with advanced knowledge. Most of the journals are published only on-line and do not have a print copy. This sudden increase in the number of journals has given rise to an entirely new industry in India – the journal publishing industry. Corollary industries have also been established that provide some number to these journals' readership called the 'impact factor' (IF) by Thomson Reuters. In reality, IF is to deceive novices in the field of publication who mostly are students or young faculty with little experience. IF by Thomson Reuters, is one of the criteria to judge the quality of a journal, but it has been abused by these so-called scientific journals and the indexing agencies that provide pseudo IFs. The quality of these journals is certainly questionable as they claim to complete peer review in a few days. Peer review of manuscripts submitted requires substantial time to check for content, authenti-

city of work, research findings and plagiarism-related issues. Further, these journals are heavily promoted and publication charges are kept minimal so that a few authors come together and share the charges, which assures publication of their manuscript, covertly mentioned in 'Instructions for Authors'. The publication fee of these journals may vary between a few hundred rupees and a few thousand rupees. It is to be noted that most of the journals are on-line and hence do not incur substantial cost of publishing articles. These journals are not peer reviewed which casts serious doubts on the 'research' carried out by scientists and researchers.

Jeffery Beall, scholarly initiatives librarian at University of Colorado, Denver, USA calls this type of publishing as 'predatory publishing'[1,2]. Many of these publishing houses, according to Beall, claim to have their headquarters in the United States, United Kingdom, Canada or Australia, but in reality these publishers belong to countries like India, Pakistan and Nigeria. He has identified what he calls as 'predatory publishers' who often give lofty titles to their journals to make them seem legitimate in order to deceive novices in the field of scholarly communication. According to Beall, this trend is due to low barrier to entry in the field of learned publishing industry, where one only requires a computer, internet access to create a website and the unique ability to create fancy journal titles[2]. In Beall's list of 2010, there were only 20 predatory publishers listed, which has gone up to more than 300 in 2013. He estimates that approximately 4000 predatory journals exist[3]. Beall has identified the criteria for determining predatory open access publishers. Based on these criteria, he has come out with his own list of questions, scholarly open access publishers; the list is now popularly known as Beall's list[4].

This trend is due to increased pressure on academicians and researchers to publish their research findings. Balaram[5] refers to this phenomenon as 'impactitis', which has its root in Europe, an infection that appears to have spread among the scientific community in India. Nowadays, the race to publish is intense and publication counts are a measure to assess scientific output of different countries. Also, many authors prefer to publish in these journals, wherein the manuscript submitted is published without any corrections or peer review, as these journals assure them of publishing their manuscripts as soon as the publication fees are paid.

Publishers of such journals have to do away with the business bent of mind to protect the sanctity of the journal publishing community. However, these journals have potential to go a long way provided the intent is changed to sharing of research findings than minting money. Indexing agencies also have a responsibility to ensure that these journals do not tarnish their reputation.

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High throughput plant phenotyping in agriculture

Agriculture faces a tough challenge in ensuring food security due to global climate change and declining soil fertility and natural resources such as water. Recent natural calamities due to untimely heavy rainfall or drought have indicated climate change. There is an urgent need for agriculture scientists to get ready for the challenges and offer solutions for sustenance of agriculture sector by means of adaption to global climate change. Agriculture Scientists have been continuously striving to characterize the phenotype of individual plant or species. This phenotype was better understood from the view-point of genetics after the rediscovery of Mendel's laws of heredity in 1900. Today, phenotype is understood as an external appearance of gene and environmental interaction. In recent days, the term 'phenome' is often used. It is the study of plant growth, performance and composition[1]. Characterizing the phenome of an individual or species in a precise way is important to utilize its maximum potential.

The science of genetics has contributed significantly to development of agriculture. There are technologies which can be used to obtain whole genetic information of plant species. For example, genetic sequences of major crops such as rice, maize, sorghum, pigeonpea, chickpea and others are available in public domain for future research. To harness this fruitful result, it is necessary to link their genetic information with phenotype. During last two decades, efforts have been made to identify genetic sequences for particular phenotype through quantitative trait loci (QTL) identification, gene mapping and sequencing. Owing to these efforts, precise selection of desired phenotype for target traits is being done using molecular marker-assisted selection. In practice, phenotyping a trait is not an easy task, it requires endless efforts and knowledge to measure or quantify the traits. Conventional phenotyping was done in replicated experiments at multiple locations. Some traits are analysed using techniques which are destructive in nature; for example, estimation of nitrogen content, carbohydrates in stem, etc. These conventional phenotyping exercises are laborious and not very precise to match